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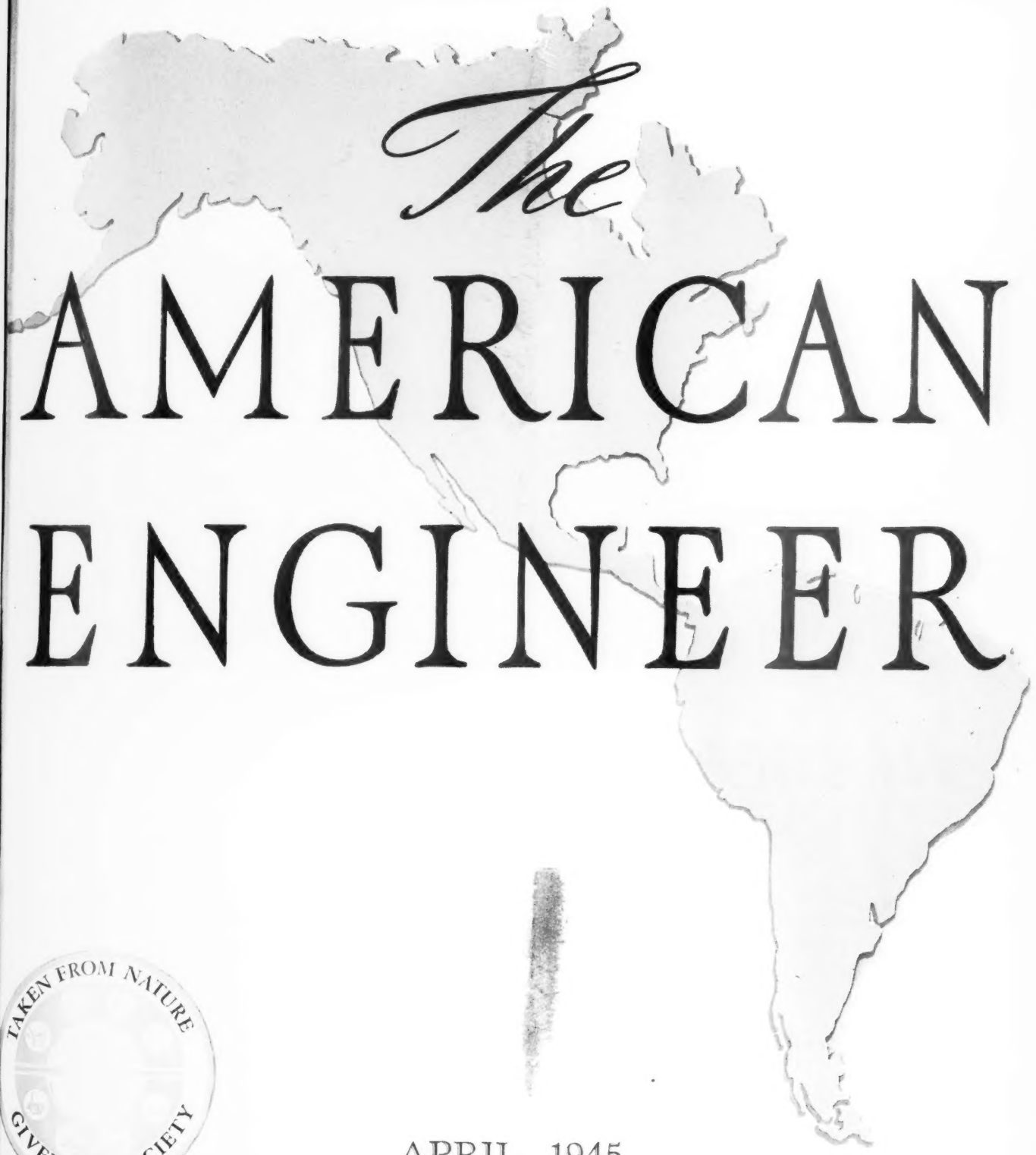

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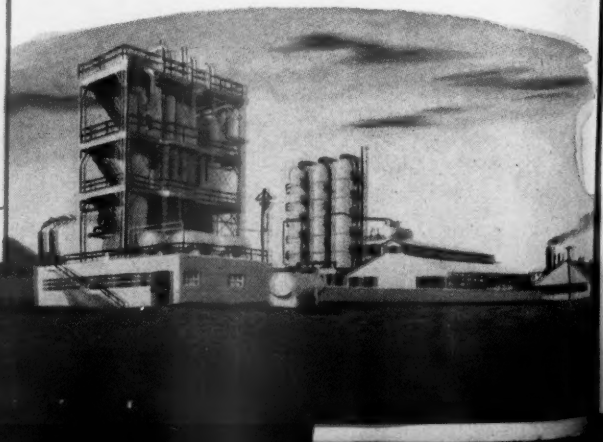

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A Voice For The Profession

LEGAL AND MEDICAL ORGANIZATIONS CITED

N. S. P. E. Meets The Repuirements.

This issue of the American Engineer contains two articles dealing with the organization and aspirations of the National Society of Professional Engineers and one concerning the corner stone upon which the Society is founded, namely, the legal qualification and designation of the professional engineer. The authors come from the mining, electrical and chemical branches of the profession. Readers are urged to ponder the convictions expressed and the recommendations set forth.

During recent years, especially recent months, expression has been repeatedly given, by recognized representatives of certain technical societies, to the opinion that the engineering profession stands in great need of an organization capable of representing it in public, as well as in professional councils. In nearly all instances the unity of the legal and medical professions has been stressed and their form of organization cited. Occasionally engineering organization proposals have been suggested.

It is significant, as well as strange, that so many of those who profess to seek a parallel to the American Bar and American Medical Associations overlook or disregard in their proposals the premises upon which the legal and medical professions are organized. One wonders why? Is it because they believe the methods and standards of these professions unsuited or inapplicable to Engineering? Can it be because they believe such organizations relatively impotent? Or, is it perhaps because they are reluctant to accept the fact that others, long since having recognized the need for an all embracing and strictly professional engineering association, proceeded more than a decade ago to organize on a national basis such a society, composed of certain state professional organizations already in existence together with others to be formed?

Frequently one hears statements (from engineers only) that engineers are not professional men in the same sense as lawyers and doctors, because only a comparative few engage in a practice that involves personal and confidential relationships. Is such a criterion sound? If so, what is the status of the lawyer and doctor who is an employee of a federal, state, county or municipal agency, or one retained by an individual, firm or corporation on a salary basis? Is such a person, including the doctor on the battlefield, any less a professional man than the small private practitioner? If so then the rapidly increasing percentage of such lawyers and doctors will one day place a majority of the practitioners of these callings outside the professional pale. Thus might approach the ultimate—a common epitaph shared by law and medicine in company with engineering in the graveyard of professions, buried by the socialized status of all three.

The criterion of professional status is not relationship of client and practitioner. Rather is it the fact that the practice of a profession involves the application of laws, theories and principles, natural or human, the misuse of which is a menace to society.

Commenting on the effectiveness of the methods and standards of the legal and medical professional organizations, surely no one questions the fact that such organizations are better developed, better publicized and better recognized than the best that engineers have to offer. To contend otherwise is quixotic.

The Engineering News of March 8th contains an editorial inspired by an address printed elsewhere in the same issue. The said editorial suggests that the National Society of Professional Engineers might well be dissolved or shelved in favor of a Council to be composed of representatives of certain technical societies plus representation from the professional society movement. It suggests further that the function of the professional society be restricted to such matters as registration which in effect means organization at the state level for limited activities.

In rebuttal of the proposal for a heterogeneous Council one is urged to read the paper of James F. Fairman which appears on page 6 of this issue of the American Engineer. As to the dissolution of the National Society of Professional Engineers one need only turn to page 10 and the presentation of its President, Harry E. Nold. In the appeal of John M. Weiss on page 12 there is a challenging answer to the suggestion that a heterogeneous group of technicians could be welded into, or called, a professional society warranted in representating the profession of Engineering in this country.

In the address which prompted the suggestion of the Engineering News there are noted various societies and their respective memberships as a basis for a new national organization in the form of a Council to represent the engineering profession. No mention is made of the National Society of Professional Engineers, the only national Professional Engineering Society in the country. To consider, let alone contend, that the memberships referred in the said address are representative of the engineering profession is to seek to refute fact as well as common sense. The laws of 46 states, including those states where the regulation of the practice of engineering is limited, definitely advise who is a professional engineer. A record of those members of the societies listed in the address who are professional engineers is not readily available. However, there is little doubt that none of them contains as many members of professional status as does N.S.P.E. The overwhelming majority of these members are not professional engineers. To suggest that an organization or Council representing such memberships could presume to represent the profession of engineering, or professional engineers, in the United States has neither merit nor warrant. A society or group of societies, the majority of whose members are non-professional, which attempts to terms itself a professional organization fools nobody but itself. The public and the public official are not impressed by such practices which serve only to injure the professional engineer. A society with 1,000 members wherein membership is restricted to legally recognized licensed practitioners, has better status in the public mind and is a better voice than one with ten times as many members only a fraction of whom have any legal claim to professional standing.

To suggest that engineering needs a voice similar to that possessed by law and medicine through the American Bar and Medical Associations and ignore the fact that none but licensed practitioners are included in such organizations serves but to emphasize how illogical is a proposal that N.S.P.E. disband in favor of a Council representing memberships, two-thirds to three-quarters of which are not licensed, hence not legally professional engineers.

One might summarize all comment on the proposal to organize an engineering society comparable to those of the legal and medical professions by asking why not the National Society of Professional Engineers. Its form of organization and its membership requirements are identical with those of the legal and medical societies. It parallels in all respects save one—the field of scientific and technical endeavor. This it left, in deference, to existing societies in the hope and the belief that having so long forsworn social, economic and professional considerations they would adhere to their traditional policies. Was this a mistake? Perhaps the answer is the expansion of the field of N.S.P.E. This is of course merely a query.

WHY A SOCIETY OF PROFESSIONAL ENGINEERS?

REFERENCE TO THE AMERICAN ENGINEERING COUNCIL SUGGESTS THE IMPRACTICABILITY OF FEDERATION

MEMBERSHIP REQUIREMENTS AND ORGANIZATIONAL FORMATION MAKE N.S.P.E. THE AGENCY TO REPRESENT THE PROFESSION

BY JAMES F. FAIRMAN

James F. Fairman
Director N.S.P.E.

Director James F. Fairman of New York in a recent address before Michigan Engineers referred to recent proposals emanating from various engineering quarters and suggesting that a federation of existing societies is the means towards the establishment of an organization capable of representing the profession. He recalls the experience of the Federated American Engineering Societies in forming and sponsoring the American Engineering Council. The absence of unity and the lack of support caused its disintegration after twenty years of ineffectual effort. This address is a convincing argument in favor of the form and aims of N.S.P.E.

A distinguished citizen of this state was once alleged to have remarked "History is Bunk." Whether or not that remark was ever made is beside the point. If the allegation is true, the remark may have been made under sufficient provocation and with considerable justification. It is not my purpose to question that statement and, lacking the distinction of the gentleman who is supposed to have said it, anything I might say in confirmation or refutation would not be headline material. I use that quotation merely as a spring board. I was reminded of it while brushing up on a little comparatively modern history of the attempts of the engineering profession to organize for the purpose of speaking with one voice on their common professional problems. In connection with that review I read a lot of bunk, some of which might qualify as history.

In so characterizing my reading I should like to make it clear that I am not intending unkindly to characterize the individuals whose remarks I have read. I believe they spoke and wrote with sincerity but it distresses me to see history begin to repeat itself in the short span of 25 years. I should like to commend to some of the present day proponents of a league of nations of the engineering societies that they read the recorded accounts of the formation of the Federated American Engineering Societies which they will find published in the journals of their respective organizations for the year 1920.

That federation was launched with much more fanfare than engineers are usually able to muster for their activities. Those were the days when, because of the accomplishments of engineers in World War I, there seemed to be an opportunity to ride the crest of the wave of public approbation of and admiration for the accomplishments of the engineering profession and of its individual members. The whole thing seemed to reach a climax in the leading editorial of the Washington Herald for Saturday, November 20, 1920, in which the editor opined:

"When the history of the year 1920 comes to be written by chroniclers and interpreters of its important events they will say that the formation in this city of the American Engineering Council of the Federated American Engineering Societies was epoch marking. Conceived during the war, born during a period of reconstruction, it has within it even as a child among institutions, a power that statesmen, politicians, taxpayers and plain folk must reckon on as henceforth important.

"The persons who are affiliated with this newly constituted council are experts as compared with ordinary civilians or public officials. As human beings, taxpayers and democrats, they are weary of the unnecessary costs, the bureaucratic tyrannies and futilities and the nonrepresentative methods of carrying on public business. They learned their lesson during the war while aiding the government to function. That which they then learned they are bound all their fellow countrymen shall know. If the latter profit by the instructions and advice well and good. But as for the engineers they are out to fight to the bitter end to conserve national wealth, facilitate cheap and swift transportation of goods and passengers, pacify warring capital and labor, coordinate governmental machinery, and make the proved facts of applied science count for more with the average American citizen than the imaginative eloquence of the political orator or the subtly perverted instruction of the hired journalist."

In the light of the sequel, comment would seem to be superfluous. Suffice it to say that the Federated American Engineering Societies and American Engineering Council, its administrative agency, were quietly laid to rest

in 1940 at the tender age of 20 years; cause of death — malnutrition.

Just before the federation's untimely demise a special joint committee of its remaining members was formed to consider the state of its health and what if anything could or should be done to revive it. This committee recognized a number of points of which I shall mention only two:

1. Some organization is essential, similar in character to the American Medical Association and the American Bar Association, to work toward the dual objectives of interprofessional relations among engineers and a combined professional approach to public problems.

2. The engineering profession as a whole has yet to find a means of advising the younger engineers on questions involving their future professional status.

These ideas will not down. They keep cropping up. The President's page in the October 1943 issue of Mechanical Engineering carried an announcement of the formation of a special joint subcommittee of the Founder Societies to study the problem. In explanation of the appointment of this committee the President of A.S.M.E. said, in part:

"As a result of conversations with officers and members of the Local Sections thus far visited, I have been impressed with the interest, almost universally expressed, in the problem of coordination of the profession. This interest was not confined to any region or to any age levels of the groups visited. I am, however, under the impression that more interest was evinced by the younger than the older members.

"Talking with a past president of the A.I.E.E., I discovered that his experience with respect to this subject paralleled mine.

"The questions most frequently asked of both of us were:

'What is being done to bring about coordination in the engineering profession?'

and, 'What is our Society doing about it?'

"Analyzing the interest expressed in this subject I came to the conclusion that it arose from a consciousness that the old, well defined lines of differentiation between the various segments of the profession are now somewhat hazy in many respects or, as a matter of fact, have in some instances almost disappeared. Furthermore, there is a deep-rooted feeling that the profession cannot speak with authority and unity on matters of common fundamental interest as does the American Medical Association or the Bar Association or the Institute of Architects. Many members think that as a result of the lack of a unified front the engineering profession suffers in prestige and in broad usefulness.

"Many say, quite correctly, that the public thinks of the engineering profession as a whole, not in classifications, such as Civil, Mining, Electrical, Mechancal, Automotive, etc. They are concerned over the fact that they sense a waning of influence of the profession as a whole and are deeply perturbed by it."

Two weeks ago I attended the Annual Meeting of the American Institute of Consulting Engineers whose President devoted his whole address to a plea for a unified profession. I quote him in part:

"If anyone believes that there exists no need for united action by the Engineering profession in expressing opinions on national policy or on matters of common concern to all engineers, let him consider not only what has happened in the past few years but the implication of things to come.

"The voice of the engineer should have been heard in Washington when Selective Service policies were being established in this country.

"There is the matter of labor relations for engineering employes.

"There is the question of the maintenance of War Department Research Programs in the years to come so that future wars, should they occur, will not find us 'behind the 8-ball' in scientific developments.

"There is the problem of professional licensing which come to the fore again by virtue of the recent decision of the Illinois State Supreme Court declaring the Illinois State Law unconstitutional.

"There are problems associated with Post-War Planning and Reconversion."

In his concluding paragraph, he stated:

"It will take no miracle to achieve a unified profession. But it will take some of that same organizing genius which has characterized the superb contributions of the engineer to our war effort."

I am not quoting the portion of his remarks dealing with the way to bring this about but I will be honest with you and say that he advocates the league of nations idea.

I commend to any of you who are tempted to follow the sincere and plausible arguments of those who advocate federation that you go to a library if your own files of your respective journals do not go back to 1920 and read there all the pros and cons, but mostly pros as is only natural in a journal of a society favoring a particular type of action, regarding a federation of autonomous engineering societies. That there were doubters in those days is evidenced by the lengths to which some of the pros went to demonstrate that such a federation would be representative and democratic, that it would have the advantage of fine prestige, that local organizations would be adequately represented, indeed the Detroit Engineering Society was one of the original members of the Federation. and considerable was written to prove that the organization would not be unduly cumbersome in its functioning. One of the opposing prophets was quoted anonymously before his argument was demolished. I quote him because he was a better prophet than he knew:

"The engineers of the United States today number at least 100,000 — possibly 200,000. Within a decade or two it is not impossible that this may be increased to 500,000. Anything short of an effort to bring every one of these engineers individually into the fray by giving them a direct vote and otherwise, would be in the first

place to go counter to every modern tendency in democratic theory, but of even greater immediate importance, it would deprive the new Federation of the most obvious means of educating and gradually enthusing the rank and file. This is just the kind of opportunity which was missed in the failure to provide that the members of the American Engineering Council should be elected by the votes of the members of the constituent organizations rather than by the boards of these organizations."

It is encouraging to observe that an increasing number of our brethren appear to be taking into account the lessons of history. The fact that the special joint subcommittee appointed in 1943 which I mentioned a moment ago has not yet brought in a report indicates that the gentlemen concerned are taking their assignment seriously. I know the Chairman of that committee and it has been my privilege to exchange views on this subject with him. He is a past president of A.I.E.E. and is also, since my conversations with him, a member of the Pennsylvania Society of Professional Engineers. His successor in office in a recent address dealing with representation of the engineering profession in civic and state affairs and improvement of the economic status of engineers made this startling and courageous statement, startling and courageous as coming from a president of one of the founder societies during his term in office. He said "I believe our need is for some overriding association of engineers whose purpose is to represent all branches of the profession in civic and state affairs and which also is capable of watching over the welfare of its individual members in broad issues. Such an association must be entirely independent of our technical societies which have a very definite, important and growing field of activity. It cannot be set up as a side line of the Founder Societies." Incidentally this man is not a member of any of the State Societies affiliated with the National Society of Professional Engineers, but I think he will be.

I assume you are here because you are conscious of the need for some type of organized effort which will enable the members of the engineering profession to obtain recognition of their calling as a profession and of their contributions as individuals to the public welfare as well as enabling them to attain other common objectives.

Now, in spite of what you may think, I am not here to sell you anything. I came out here at your invitation to tell you something about the professional engineering movement and of the organization which I believe is best adapted to accomplish the common aims of all engineers regardless of their field of techical specialization. Naturally, I have certain convictions and I take it you expect me to express them. I have indulged in this somewhat extended survey of the past because I believe it may be helpful to you in your own thinking. I urge you not to take my word for it but to make your own investigations and to draw your own conclusions as to whether or not the National Society of Professional Engineers offers the best vehicle for the pursuance of our common professional aims and for the solution of our common professional problems.

In your consideration of the kind of organization best suited to our purpose, a federation of autonomous societies or an independent society of individual members, I suggest that you ask yourselves these questions:

1. If a federation at the national level is decided upon, who will represent you here in Michigan on matters peculiar to or confined to the State of Michigan and who will be your voice in a city or county on local problems?

2. Can a federation of groups having a diversity of objectives in specialized fields function as expeditiously and efficiently on a common objective as an organization composed of individuals and devoted exclusively to that common objective?

3. Has human nature changed to such an extent in the past 25 years that the present generation of engineers can hope to function through a federation more successfully than their predecessors or would we now, with the lesson of the past 25 years before us, be wiser in trying another method which already gives definite promise of success?

4. Which type of organization can speak more authoritatively for professional engineers, a federation composed of a number of autonomous societies whose membership includes many non-professional persons, or a single society composed exclusively of professional engineers?

5. Which type of organization will be most likely to stimulate the individual members to active participation in the solution of our common professional problems, a federation on the national level somewhat remote from the individual or an organization composed of individuals and built on the participation of the individual in his local chapter, in his state society, and in his national society?

Many changes can be rung on these five questions but I believe you will find that they cover the field of choice which we must make.

Admittedly, a federation of existing organizations is attractive. It has one apparent advantage in that it can immediately claim to speak for not only a representative cross-section of the profession but a substantial majority thereof. It can claim to speak for them but the fun begins when it attempts to do so. A new and independent organization, on the other hand, has a long hard struggle to sell itself to a sufficiently large and representative number of individuals before it can make and support such a claim. When it does arrive at that stage, however, it has a much better chance of making good its claim of representing the views and wishes of its members.

The National Society of Professional Engineers is designed to be one organization for the whole profession, one clearing house for our professional problems, one voice for the engineering profession. Obviously it can be effective just to the extent that it includes among its members substantial representation from all branches of he profession and all fields of functional activity. For maximum effectiveness it is organized in units paralleling our political subdivisions, local, state, and national.

The National Society of Professional Engineers has one

requirement for membership — legal qualification to practice; one grade of membership — active; one source of authority — the individual members; and one responsibility — to the individual members. In contrast to a federation it is a streamlined organization.

I am not offering for your consideration a panacea for all the ills of the profession. I am not offering you an easy solution. Quite the contrary and I speak as one who has been fairly active for the past ten years. If we should be fortunate enough to have all the qualified engineers in one organization, that in itself would not solve our problem. We must work. We must give. We must shake off the lazy habit of letting George do it. We must recognize the futility of the typically American procedure of passing a resolution or a new law every time a problem arises and then relaxing in the fond hope that we have solved something.

Specifically, to you here in Michigan, I would earnestly recommend against your starting a state society on a shoestring. Such a start only adds to your burdens and diverts your efforts from the real job. The major effort of any state organization should be devoted to the attaining of its objectives rather than to the necessities of sheer survival. That means not only devoted service on the part of your officers, directors, and committee men and your members, but it also means money. As engineers, we know we cannot get something for nothing. Let's not waste time and effort trying.

You need money to maintain an office or headquarters of which you will not be ashamed. You need money to staff that office, and I mean more than a stenographer or two, I mean a competent full time executive secretary to do the drudgery as well as to do much of the missionary work and to represent you before various governmental and other agencies. You need money for legal counsel because many of our activities involve legal matters and without such counsel we suffer a severe handicap. You need money for an attractive publication through which you can keep your members fully informed. You need money for a lot of things, the lack of which will handicap the operation of the Society.

I know that any talk about money, about paying dues in another society, sets up a reaction which is difficult to overcome but we may as well face it realistically. I believe that it is lack of realism more than anything else that has handicapped our efforts in the past. I become very impatient with the members of our profession who complain about the fact that their societies are not doing enough for them as individuals, for example, in the field of their economic status. I wonder how our members could expect more than they are getting for the dues they pay. Contrast the dues which we as professional men pay to any of our professional societies with the dues which a skilled craftsman or unskilled laborer pays into his union. Unions retain able counsel to represent them; we frequently try to do it ourselves and can we be surprised at the results! I believe that we get just what we pay for and when we are willing to pay for more we will get more.

I think we need a new and more realistic perspective on our professional obligations in financial terms. We need a yardstick on this problem of dues to professional societies. I am not suggesting any specific figure because I believe the way to set dues is first to measure in dollars the job we want to do, then divide that cost by the number of people who want the job done. Only by way of illustration, let's take the round sum of $25.

When anyone mentions dues of the order of magnitude of $25 a year the average engineer throws up his hands. He cannot possibly afford that much money for the protection and advancement of his interest in his profession. How much is $25 a year? It is 10c a day for 5 days a week for 50 weeks; it is less than the carfare we spend going to and from our jobs. It is appreciably less than most of us spend for cigarettes. Make your own yardstick and ask yourself how much is your profession worth to you.

As I said the National Society of Professional Engineers offers no panaceas; it offers only an opportunity for hard work and for giving by those who are really interested in the advancement of their profession. As an organization it is not perfect. No organization conceived by human beings ever has been or ever will be perfect. But it is structurally simple and sound and it is aimed in the right direction. By giving it our support and guidance we can build it into a great instrument for the public welfare as well as for the advancement of the profession.

There has been too much moaning about lost frontiers, too much resignation about a mature economy, too much specious reasoning about production for use, too much craven desire for security — whatever that is — but I believe there are still some Americans who will subscribe to the thought expressed in the opening lines of Russell Davenport's recent poem, "My Country."

"America is not a land of ease.
We have not paused from action to beget
Heroic simile and song and frieze;
We have no empire of the mind as yet,
Nor have we shed our light within the grave:
But, as the sons of enterprise and sweat,
Honor the quick, the strong, the free, the brave—
The mind whose thoughts are cradled in the hand—
The fierce emancipators of the slave
Exacting destiny of virgin land.
We are the builders of dynamic things,
Successors to the spires of Samarkand—
Boilers and bars, propellers, wheels and wings
To run and fly and dive at our behest,
Through which the mighty wind of freedom sings.
America is not a land of rest."

SOMETHING ABOUT OUR SOCIETY

ITS PURPOSES AND PROBLEMS

BY H. E. NOLD, PRESIDENT N. S. P. E.

In this article President Harry E. Nold sets forth the basis of organization and points to the growth of the National Society of Professional Engineers. He outlines some of the problems confronting the Society and submits an itemized statement of the additional financial needs to meet a realistic budget.

The development of Engineering as a profession is closely associated with the various state laws for the registration of Professional Engineers. Professional development and the successful operation and enforcement of the registration laws required the organization of societies of Professional Engineers in the various states. In 1934, the four state societies New York, Pennsylvania, Connecticut, and New Jersey, joined to form the National Society of Professional Engineers, From a membership of about 2,500 in 1935, the N.S.P.E. has grown consistently to a membership of over 9000 in February 1945. The number of member state societies has increased to twenty four. The number of states having engineering registration laws is now 46.

H. E. Nold
President. N.S.P.E.

N.S.P.E. is now a going organization, organized for *Service*: service to our members and, by improving the engineering profession, service to humanity. To improve our profession, we must increase our technical proficiency, eliminate unethical practice by engineers, persuade engineers to assume greater responsibilities in civic and governmental activities, educate the public to appreciate the true functions and worth of Professional Engineers, educate engineers themselves to appreciate their true worth to humanity and assume to the full the responsibilities connected therewith, help the young engineering graduates to develop to full professional and technical stature, improve and strengthen engineering registration laws, encourage state and Federal legislation which would benefit our citizens and the engineering profession and help defeat proposed legislation which would be detrimental to our profession. Such, in essence, are the reasons for the existence of our state societies and our national society. Those societies have no excuse for existence but to render service and they will prosper or perish in accordance with service rendered.

Our national, state, chapter type of organization was wisely conceived and developed. Chapters can be effective locally, but due to their local character, cannot be effective in the state level. When chapters are combined into integral parts of a state society, we have an organization potentially very effective both locally and on the state level. Similarly, state organizations cannot be effective outside the boundaries of their respective states. Uniformity of state engineering laws, engineering practice across state lines, nationally recognized and accepted ethical standards, and protection and development of our profession under federal laws requires that our state societies be combined into a national organization. The National Society of Professional Engineers is our national organization.

Those who conceived and organized N.S.P.E. had a clear vision as to the type of organization needed, but they did not, perhaps could not, set up our national Society on a sound financial basis.

Our national headquarters, in Washington, D. C., are manned by an Executive Secretary, an Office Manager, and three office assistants who perform the usual functions of stenographer, bookkeeper, clerk, etc. It is no small task to carry on the necessary office work for a national society of more than 9000 members. Each year, thousands of letters are received and must be answered, publicity literature must be revised, printed and distributed, a dues account must be set up for each member, membership address records both in Washington and in the office of the publisher of the *American Engineer* must be kept up to date—no small task in these days—, books must be kept showing all monies received and dispersed. These and many other items are the details of the office work carried on in our national headquarters.

The Executive Secretary is expected to keep in touch with national legislative activities affecting the engineering profession, attend all meetings of the Board of Directors and prepare minutes of same, keep in close contact with member state societies by attending their annual meetings and otherwise assisting and advising them. The secretary is also responsible for the development and organization of state societies in states not now organized (this alone, with 24 unorganized states should occupy the full time of one very able man.) The President expects the Secretary to know the key men and potential leaders in each state society, so that he (the President) can call on them for help on committee work and otherwhise. To do his work properly, the secretary should also attend the annual meetings of N.C.S.B.E.E., and S.P.E.E. He should be a welcome visitor in the office of E.C.P.P. and every national technical engineering society. In other words, he should be travel-

ing practically all the time, and still be in Washington to direct policies and carry on the business of N.S.P.E. and act as legislative agent. Obviously, with our present limited staff, many things are left undone.

Finances are our limiting factor today. Our national dues are $4. It costs about $1.10 per member to publish and distribute the *American Engineer.* This leaves about $2.90 per member to pay for operating the society. Consequently, many things are left undone and many needed services to our members are either not done at all, or only partially done. Here is a list of some services N.S.P.E. should render but cannot, due to lack of finances:

1. The editor of the *American Engineer,* Arthur Sheridan, is not paid for his work. His editorial work is done, for love of the cause, at night, when most engineers are asleep. We must recognize the fact that the editing of our magazine now requires so much work that we cannot expect to publish it much longer without a paid editor, located at national headquarters in Washington. An editor in Washington would have access to much material, legislative and otherwise, which cannot be available for publication under present conditions. To make this change will cost about $7,000 per year for one editor, one stenographer, additional office space and necessary supplies. It is expected that the publisher will soon assume a considerable part of this cost.

2. An investigation, made several years ago, indicated that at least 60% of the bills introduced in the Congress affect the engineering profession, sometimes in a major way, sometimes in a minor way, sometimes indicated in the title of the bill, sometimes tucked away in an obscure sentence. This means that all the bills should be read and our membership kept informed by bulletins, letters, or telephone, according to the importance of the case. We need a contact man "on the hill" in Washington to protect our interests. It would cost us about $15,000 per year to render such services to our members. Today little is or can be done and much needs to be done this year and every year.

3. The recent Supreme Court decision declaring the engineering registration law of Illinois unconstitutional is causing much uneasiness regarding the constitutionality of the registration laws in other states. N.S.P.E. has been formally requested to have a research made by competent attorneys to determine the probable constitutionality of all our state engineering registration laws and to advise our state societies how the weaknesses, if any, might be corrected. Such a study should be made. It would cost much money—probably $10,000. We can do nothing because we have no money.

4. Other legal studies need to be made of the Wagner Act, the Fair Labor Standards Act, the Federal Civil Service laws, etc. All these and others vitally affect our profession and some changes need to be recommended to the Congress. Today, we can do practically nothing because we have no money to employ legal council skilled in these matters.

5. We need money for committee work, for additional legal advice and for stenographic help and travel in the few cases where committee meetings are essential. Committees are criticized because they do not operate more effectively when really they should be complimented for the results they obtain under adverse conditions.

6. The headquarters office in Washington is frequently criticized—board minutes take too long to prepare and send out, changes in addresses of members are not made promptly on the mailing list, letters are not answered promptly, members are not kept informed of the status of important pending legislation, the office is not operating efficiently, etc., etc. In the main, the facts are as indicated above. Improvement is not easy. Efficiency of office operation is difficult to attain in crowded quarters. The Board, at its recent meeting in Pittsburgh, took steps which, it is believed will result in improved efficiency in the operation of the office. Nevertheless, the complete service demanded by and due our members cannot be given without more space and more personnel. Our personnel budget for the Society this year is about $15,000. We have no more money.

7. We are frequently embarrassed because we do not have a printed roster of our members. Such a roster is needed for many purposes including legislative. A committee of the Board recently reported that it would now cost $3,000, to publish a membership roster of N.S.P.E. No money being available or in sight, the Board regretfully filed the committee report.

8. The National Board makes occasional recommendations to state societies for their consideration and action. The only notice generally sent to the state societies is in the voluminous minutes of the Board meetings. Being voluminous, and necessarily so, the minutes are frequently not read and nothing happens. Our office should be staffed so that Board recommendations and other important items could be sent promptly to all state society officers by means of personal letters. If no action is taken by the state societies, follow-up letters should be sent. This would be money well spent but we lack the money.

9. Travel. N.S.P.E. must pay the expenses of the Executive Secretary and national officers when traveling on society business. This has been costing about $2,000 per year. This year, it will cost considerably more because it was thought wise to send our national secretary to the West Coast and points en route on a promotional and good-will trip. As our society grows, the cost of necessary travel will not decrease. Promotional travel is necessary. There seems to be real benefit in having N.S.P.E. officers meet with and talk to state societies. The budget item for travel cannot be reduced and should be increased. N.S.P.E. does not pay the expenses of national directors to Board meetings.

Our financial situation sums up about as follows: anticipated N.S.P.E. income $37,000 all budgeted for 1945.

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SAFEGUARDING THE PROFESSION

LICENSING LAWS DEFINING PRACTICE

THE ONLY METHOD WHEREBY LINES BETWEEN PROFESSIONAL AND SUB-PROFESSIONAL PERSONS CAN BE SUFFICIENTLY AND LEGALLY ESTABLSIHED

To Meet The Impact Of Labor Union Movements

BY JOHN M. WEISS

DR. JOHN M. WEISS

The author, John M. Weiss, a distinguished Chemical Engineer and long active in the American Institute of Chemical Engineering, has proposed to the Institute that its legislative committee collect information concerning the registration status of members with a view to urging those who are unlicensed to qualify if possible. He also urges cooperation from Chemical Engineers in the establishment of Engineers-in-Training in the various states in which they practice. Pointing to the problems arising from the organizational efforts of labor unions among technical men, he suggests the value of engineering licensing laws.

The impact of labor union movements on engineers has in some cases been severe. There has even been one case where an engineering consultant was unable to serve the plant of a client without first acquiring membership in the union dealing with that plant. If our chemical engineers are to maintain a professional rather than a trade status, they must take their heads out of the sand and indulge in positive action.

Such action should be based on the same type of analysis and consideration as is used in attacking any ordinary engineering problem. The objective must be visualized and the steps to the objective charted. The first step is to establish a distinction, based on law, between the technician, who essentially works with his hands, and the professional engineer, who works with his brain.

Probably the case of the technician, who is satisfied with his niche and has abandoned (if he ever had it) all idea of going further, is best handled by trade union methods. But unless we can make a sharp line of distinction between true professionals and technicians, the tide is going to engulf professional activities as well. If we have a closed shop including the technician, a considerable part of the engineers on the lower rungs of the ladder, and the mass of young pre-professional engineers, it will be hard to prevent the extension of union membership upward to include all engineers, unless some real distinction is set. Chemical engineers have no right to expect that they will be any exception. If an outside consultant can be forced to become a union member or forego any engagements with organizations having a technical closed shop, the situation requires more than academic consideration.

The tagging and definition of the professional cannot be left to individual opinion, nor to the joint opinion of self constituted organizations such as our national engineering societies and their membership requirements. Legal recognition is required. The strength of the legal profession, the medical profession, and the architects is based on such legal recognition afforded by the laws of our several states.

For the engineers, the mechanism also exists in the engineering registration acts which are almost universal today in the United States. These have been enacted against the protests and apathy of a considerable proportion of the engineering profession and have, in many cases, been emasculated by making their application permissive rather than compulsory. Imperfect as they are, they do form the basis for immediate steps against the tendency to place our profession on a trade basis and if steps are not taken soon, it may be too late.

Such acts allow the mature engineer, in general after five years post graduate practical experience, to license as a professional engineer and place a seal of legal right on his professional status. Very recently several states have amended their laws so as to qualify the young graduate as "engineer in training" immediately after graduation and thus bridge the gap until full professional status is attained. This category is under consideration in a number of states and may shortly be expected to be general practice, especially if engineers as a whole put their influence and effort behind it.

The chemical engineer must take active part if his interests are to be protected. It is not a question of being opposed to licensing, as so many of our older confreres have been. We are dealing with a condition and not a theory. Licensing is here to stay and will grow with the years. It is our answer to the question of legally establishing professional status and we should take advantage of it.

The first requisite is to have as large a proportion as possible of chemical engineers licensed. The effort should be first at the top of the profession so that by example

(*Continued on Page* 29)

Submitted as:

ITEMS OF GENERAL INTEREST

Miracles By Engineers

Brings Salute From Military Analyst

The American Engineer acknowledges the courtesy of Lewis Braverman in directing attention to this tribute. As he well states, publicity of this sort is sorely needed by the engineering profession. Can anyone elaborate on this subject matter?

In an article recently appearing in the press, Hanson Baldwin, well known military analyst, pays unusual tribute to the work performed by the construction units of the American Army. So well has Mr. Baldwin presented the case for the Engineer that the material published under his name in the New York Times of February 12th is reproduced in full:

Too little honored and too little sung are the men who have worked and sweated in this war to make the fighting possible.

The engineers, the quartermaster companies, the railroad and port battalions have accomplished prodigies of construction and supply that the ancients would have listed among the wonders of the world.

"Doing the impossible" in an engineering sense is an American habit, and construction or reconstruction of roads, airfields, railroads and docks all over the world and supply and maintenance of Allied armies in a dozen countries have been accomplished despite almost insuperable difficulties.

Here are a few of the accomplishments that deserve to go down in the history books as among the great feats of military engineering and supply:

Ledo-Burma Road

The Ledo stretch, from Ledo in Assam, India, through Myitkyina and Bhamo in Burma and thence to Wanting on the Burma Road in Yunnan Province, China, has been nicknamed "Pick's Pike," after its builder, Brig. Gen. Lewis A. Pick, Corps of Engineers, United States Army. After junction with the Burma Road was made and the latter route was virtually reconstructed with Chinese labor and American engineering help, the roads were renamed Stilwell Road, in honor of Gen. Joseph W. Stilwell, whose vision and drive made the forging of a land supply route to China possible.

Work on the Ledo road started Dec. 10, 1942, but by Oct. 13, 1943, when Gen. Pick assumed command, only forty-two miles of road had been constructed and the project seemed hopelessly bogged down in a maze of precipitous, jungle-covered, rain-lashed mountains. Eighty per cent of the engineers were hospitalized with malaria. In the monsoon men were always wet; long, blood-sucking leeches clung to their skins and the bites festered; bulldozers slithered off cliffs.

On his first evening in Ledo General Pick held a staff meeting in the officers' mess hall.

"I've heard the same story all the way from the States," he said. "It's always the same; the Ledo road can't be built. Too much mud; too much rain; too much malaria.

"From now on we're forgetting this defeatist spirit. The Ledo road is going to be built, mud and rain and malaria be damned!"

It was built, 478 miles of it. More than 100 miles of it passed through mountains, some 4,000 feet high, so matted with tropical vegetation that the ground had not felt the sun for years. Scores of miles went through rice paddies and swamps. A two-mile wooden causeway, built of 1,000,000 board feet of lumber, cut from the jungles by two GI sawmills, bridged a low-lying section of the Hukawng valley, inundated by four to six feet of water. The dirt moved to build the road would build a solid wall three feet wide and ten feet high from New York to San Francisco.

Ten major rivers and 155 secondary streams were bridged; there is a bridge crossing an average of every three miles. Every conceivable type of engineering bridging problem was encountered. Most of the spans are pile-driven, two-way, heavy structures, but the Irrawaddy River, sixty feet deep where the Ledo road crosses it and fluctuating about forty-five feet between high and low water stages, is crossed by a specially designed floating bridge. Thousands of natives were employed in the project; the quartermaster had to stock a dozen types of rations; 200 dialects were spoken.

Nothing stopped "Pick's Pike"; the Ledo Road was driven at an average rate of about a mile a day, as men fought and worked, lived and died for it.

Less known than this tremendous accomplishment is the American part in the virtual reconstruction of the Burma Road. The American Burma Road engineers, originally less than fifty of them, with eight pieces of patched-up machinery manufactured in four countries, supervised and aided the work of 30,000 Chinese coolies in grading, improving and, at places, virtually reconstructing the road.

This project alone makes the Alaska highway pale into engineering insignificance. The Alaska highway had more than 1,500 pieces of machinery, the Burma Road eight; the Alaska highway had 12,000 skilled workmen, the Burma Road fewer than fifty; the Alaska highway's greatest elevation is 4,212 feet, the Burma Road's 9,200; the Alaska highway bridge 200 streams, the Burma Road well over 400.

Lieut. Col. Louis Y. Dawson, Corps of Engineers, United States Army, in charge of the American part of this project, has added his name to the list of engineer "immortals."

The devotion and fidelity and endurance of these builders, many of whom gave their lives for this combined lifeline to China, have now made land access to China possible.

The air traffic "over the hump" to China, the land traffic by truck over the Ledo and Burma Roads and oil and gasoline supplied by the pipeline to Kunming (still under construction) will eventually raise the tonnage reaching China to not far from 100,000 tons a month — a monumental achievement in the history of war.

The Persian Gulf Command

This command, under Maj. Gen. Donald H. Connolly, had one objective; to supply Russia. With the opening of the more direct Black Sea route to Allied shipping, the command's operations in Iran are now being liquidated. The records established since December, 1942, remain a monument to persistence and tenacity.

Through the Persian Gulf-Iran route Russia received about 4,380,000 tons of supplies, including 143,000 vehicles and 3,087 planes. The work included the expansion of the Persian Gulf ports of Khorramshahr and Bandar Shahpur from a capacity of 95,000 tons monthly to 265,000 tons — a job accomplished in temperatures that reached more than 170 degrees.

The Iranian railroad from the gulf to the north, which passes through 133 tunnels in 163 miles, carried 165,000 tons in 1942; in the first ten months of 1944 the road, reconstructed and reorganized with American rolling stock, carried 1,344,000 tons.

The truck routes to Russia through choking dust and around hairpin mountain turns were made possible by engineer troops who kept the roads in shape, in fact virtually reconstructed them.

They took over the job from a civilian construction company, which had been using a sandstone base material hauled many miles and the Army developed a new type of "soil-asphalt base," mixed on the spot.

There is no doubt that the Persian Gulf Command was instrumental in helping to keep Russia in the war.

European Ports

These ports, from North Africa to Antwerp — demolished, blocked and often nothing but fire-blackened rubble — have been reconstructed by the finest sort of inter-service and inter-Allied cooperation. Army, Navy and civilians, British and American and native laborers and longshoremen have made the progress of Gen. Dwight D. Eisenhower's armies possible.

Antwerp, most important of the present supply ports, was far less damaged than other ports farther south. Nevertheless the job of mine sweeping, dredging, repairing and reorganizing, under the fire of robot bombs and rockets, was gargantuan. But today, as one American general put it, "if all the armies in the world were suddenly dropped right here on the Continent of Europe, we could probably supply them all through this one port of Antwerp."

These are some of the magnificent monuments to the men who work and sweat in the war to make the fighting possible.

Public Relations Committee

Pennsylvania Society Submits Report For Publication

Subject Matter As Set Forth In American Engineer — 1935 And As Presented In New By-Laws Also Reproduced

In accordance with an action taken by the Pennsylvania Society, the report of its Public Relations Committee is presented as received.

Attention is directed to the report submitted to the National Society of Professional Engineers at its 1944 meeting by J. J. Paine, Chairman of the Public Relations Committee of N.S.P.E. The available space in the American Engineer for several issues subsequent to the said annual meeting prevented publication at the time.

There are also reproduced herewith the duties of the said Committee as cited by N.S.P.E. and published in the American Engineer of January 1935, page 18.

Report Of The Public Relations Committee Pennsylvania Society of Professional Engineers

The duties of the Public Relations Committee, as defined by the Pennsylvania Society of Professional Engineers for the State Society, are at considerable variance with the duties promulgated by the National Society of Professional Engineers for their Public Relations Committee.

We believe that the National Society's rules are much more comprehensive than those of our own and recommend their adoption by this Society. These duties, together with "a few suggestions of specific things to do", were published in the October, 1944, issue of The American Engineer. We believe a restatement of these duties at this time is worth while and that they will be of value to the Local Chapters.

Duties of Public Relations Committee

1. To conduct a planned publicity campaign, with periodical releases to newspapers and magazines on behalf of the Engineering Profession.

2. To inform the public on the high qualifications of the Engineer, the importance of his services to human progress, the requirements of registration, proper methods of selecting engineering services, and the desirability of appointing Engineers in public councils and in high executive and administrative positions.

3. To educate Engineers and the public as to the meaning and proper use of the term "Professional Engineer."

4. To conduct a campaign to secure credit for the Engineers in connection with the works designed and executed by them, including specific recognition and credit in published accounts and illustrations, in dedicatory exercises, on name plates, and on commemorative tablets.

5. To conduct a campaign to stimulate engineering leadership in civic problems and public affairs.

6. To correspond and confer with public officials and government agencies on behalf of the Profession in matters affecting the interests of the Engineer.

7. To educate the public on the correct place and attitude of the Engineer in national economic problems.

8. To secure for the Profession its rightful place in social and economic readjustment, planning and progress.

In summing up these eight duties set forth by the National Society, it is evident that the intent is for all Public Relations Committees to conduct a "planned publicity campaign" to create and maintain in the public mind a favorable and interested attitude toward engineers and engineering. These ends can be best accomplished by an educational program of articles in newspapers, magazines, radio broadcasts, public speeches, regular meetings, school essay contests, and whatever other means an active committee deems appropriate.

The Public Relations Committee has made considerable progress along certain lines, but we believe it has tried to cover too large a field and should confine its efforts more within the definite limits of its duties.

On March 18, 1944, it made a valuable and lengthy report at the State Society Executive Board meeting relative to the Professional Engineer Employee and the National Labor Relations Act. At the time, it was recommended that two Special Committees be appointed, one for cooperation between professional engineers and employers, and the other for labor relations between the professional engineer employee and unions. The President appointed these committees.

Determined efforts have been made in a number of instances in the interests of the economic status and welfare of engineers by writing letters, appearing in person and exerting political influence on state and municipal authorities.

We have been highly successful in many cases in getting responsible engineers to register by calling to their attention that their practice is illegal and that they are perpetrating a fraud which makes them liable to prosecution. We believe the time is rapidly approaching when the Society will be in a position to make registration laws effective.

Previous to the present time, the Public Relations Committee has had charge of collecting and furnishing the necessary information for the publication of our Schedule of Minimum Engineering Fees and Salaries. This Schedule will, undoubtedly, have to be revised within the next two years. We recommend that a separate committee be appointed for this purpose and believe that each Local Chapter should have a representative so that State-wide conditions may be studied.

Many members of the Pennsylvania Society of Professional Engineers are on Post-War Planning Committees. Most of these committees, so to speak, have become standardized, having similar forms of organization and objectives. The American Society of Civil Engineers has issued a "Post-War Construction" proposed program, together with "A Community Organization Chart", by its Board of Direction, dated July 29, 1943. This is an excellent example of post-war planning and all engineers should be deeply interested.

We do not believe it necessary for this Society to take up such a program as it is more the province of the National Society. Nevertheless, we do urge our members to join actively in all local post-war planning organizations.

We recommend that next year, every Local Chapter be represented on the Public Relations Committee. In fact, we urge that every member of this Society consider himself a member of the Public Relations Committee and help the professional Engineer to obtain his proper status and recognition in society.

J. J. Paine, *Chairman*
Albert K. Hubbard
Ritchie Lawrie
James L. Daley
Huntington Todd Carter
E. H. Edwards
John Eaton South
F. G. Ross
James E. Mast

Duties As Cited By N.S.P.E. — 1935

1. To conduct a planned publicity campaign, with periodical releases to newspapers and magazines, on behalf of the Engineering Profession.

2. To inform the public on the high qualifications of the Engineer, the importance of his services to human progress, the requirements of registration, proper methods of selecting engineering services, and the desirability of appointing Engineers in public councils and in high executive and administrative positions.

3. To conduct a publicity and correspondence campaign to stop the misuse and abuse of the designation Engineer.

4. To conduct a campaign to secure credit for Engineers in connection with the works designed and executed by them, including specific recognition and credit in published accounts and illustrations, in dedicatory exercises, on name plates, and on commemorative tablets.

5. To conduct a campaign to stimulate worthy engineering projects and public works, and to promote increased demand for engineering services.

6. To conduct a campaign to stimulate engineering leadership in civic problems and public affairs.

7. To correspond and confer with public officials and government agencies on behalf of the Profession in matters affecting the interests of the Engineer.

8. To plan and arrange public lectures and radio programs to bring the Profession's messages before the public.

9. To correct such popular misconceptions and fallacies as "overproduction" and "technological unemployment," and to educate the public on the correct place and attitude of the Engineer in national economic problems.

10. To secure for the Profession its rightful place in social and economic readjustment, planning and progress.

Pacemaker For N. S. P. E.

Ohio Sets New Goal

Suggestions For 1945 (from O.S.P.E.)

1. Set Your goal for membership in keeping with the "4000 in '45" O.S.P.E. membership slogan.

2. Hold interesting meetings *Every* month.

3. Hold board of director meetings *Every Month*.

4. Hold Engineers weekly noonday *Luncheons* in every city in Ohio.

5. Invite every registered engineer to *Every* meeting.

6. Get *Every* qualified college graduate registered in 1945.

7. Invite *Every* new registrant to affiliate immediately after his registration.

A. S. C. E. COMMITTEE

Suggests New Definition

The Committee on Registration of Engineers of the American Society of Civil Engineers at a meeting on January 16, 1945 considered the question of a new definition of Professional Engineering and prepared the following statement:

This Committee is of the opinion that it is the responsibility of the engineering profession to prepare and agree upon legal definitions of "professional engineer", "practice of professional engineering", and "engineering-in-training".

LEGISLATION FOR NEW HAMPSHIRE

A Bill creating a Board of Registration for Professional Engineers and Land Surveyors with certificate privileges for Engineers-in-Training has been introduced in the New Hamphire State Legislature. New Hampshire and Montana are the only two states not having a registration law and judging from the activities reported from New Hampshire, Montana will soon be the only state without engineering registration.

N. C. S. B. E. E. Notes

From The Registration Bulletin

The March issue of the Registration Bulletin, quarterly publication of the National Council of State Boards of Engineering Examiners, has just been received. It includes such material as a new "Definition of Engineering", "Engineers-In-Training", and "Establishing Professional Status". It also advises that "A bill creating a Board of Registration for Professional Engineers and Land Surveyors with certificate privileges for Engineers-in-Training has been introduced in the New Hampshire State Legislature. New Hampshire and Montana are the only two states not having a registration law and judging from the activities reported from New Hampshire, Montana will soon be the only state without engineering registration."

1944-45 Year Book

The 1944-45 Year Book of the National Council of State Boards of Engineering Examiners contains the Complete Proceedings of the 1944 Annual Meeting together with informative data from which the following have been selected.

Number of Registrants In Each State
As of June 30, 1944.

State	*Engineers*	*Land Surveyors*	*Total Registrants*	*Non-Resident Engineers*
Alabama	480	71	551	93
Alaska	57	0	57	13
Arizona	433	18	451	123
Arkansas	312	0	312	83
California	4,393	285	4,678	306
Colorado	565	41	606	144
Connecticut	1,616	415	2,031	500
Delaware	440	59	499	62
Florida	788	96	884	243
Georgia	959	283	1,242	—
Hawaii	210	57	267	29
Idaho	306	19	325	125
Illinois	878	877	1,755	—
Indiana	1,914	33	1,947	435
Iowa	1,286	24	1,310	447
Kansas	509	0	509	165
Kentucky	956	0	956	286
Louisiana	571	108	679	112
Maine	592	0	592	91
Maryland	1,424	96	1,520	115
Massachusetts	918	16	934	54
Michigan	2,754	204	2,958	323
Minnesota	1,275	70	1,345	276
Mississippi	397	0	397	78
Missouri	1,853	—	1,853	24
Nebraska	828	—	828	188
Nevada	234	0	234	88
New Jersey	3,382	220	3,602	809
New Mexico	294	42	336	114
New York	13,610	755	14,365	1,799
North Carolina	488	82	570	150
North Dakota	163	0	163	26
Ohio	9,301	578	9,879	1,032
Oklahoma	1,081	—	1,081	—
Oregon	1,406	43	1,449	—
Pennsylvania	3,944	661	4,605	933
Puerto Rico	982	152	1,134	—
Rhode Island	621	40	661	97
South Carolina	267	43	310	95
South Dakota	151	32	183	64
Tennessee	434	—	434	107
Texas	4,513	—	4,513	656
Utah	765	45	810	92
Vermont	295	0	295	147
Virginia	751	183	934	152
Washington	1,309	77	1,386	97
West Virginia	963	0	963	116
Wisconsin	1,612	—	1,612	353
Wyoming	252	65	317	136
Total	73,532	5,790	79,322	11,378

Anent Fees and Salaries

Suggestions By Practitioner Roberts

The American Engineer
415 Lexington Avenue,
New York City, N. Y.
Attention: Editor Arthur V. Sheridan

February 20, 1945

Gentlemen:

Supplementing your valued article captioned "A Valuable Schedule" appearing in the February issue of your publication: With this find an auxiliary schedule of Fees and Compensation for the Professional Engineer which gets right down to the actual "run-of-the mill" work filtering thru the average professional engineer's office.

There has always been recognized percentages for major projects, — but little or nothing to classify the lower brackets: It is thought constructive to set this "auxiliary" schedule before the profession, — this being the result of the writer's findings after 18 years of practice.

Very truly yours,
Joseph H. Roberts
Joseph H. Roberts & Associates
1926 — 1945
Engineers

Post Office Box 1525
Waterbury 89, Conn.

Minimum Compensation And Fee Schedules For Professional Engineer And Architects

(a) Large projects of $25,000 and over ..... Arranged percentages
(b) Projects under $25,000 ..... $100 plus 6% cost
(c) Alteration projects ..... $50 plus 10% cost
(d) Consultation involving business-trips and/or Court proceedings, etc. ..... $50 per diem
(e) Consultation: Short calls away from office for preliminary project-site inspections, and tentative estimates, etc. ..... $10 and upwards
(f) Inventive designing: Special machinery, etc. ..... "Know How" fees
(g) Preliminary reports and/or designs ..... $5. per hour
(h) Field Services: Sketchings, equipment layouts, measuration of machinery or buildings, etc. ..... $5. per hour
(i) Engineering or Architectural project designs ..... $5. per hour
(j) Product design: Setting tolerances, etc. ..... $5. per hour
(k) Drafting services executed away from office (as for convenience of Client) ..... $5. per hour
(l) Tool and fixture drawings ..... $3. per hour
(m) Drafting-room services: Shop drawings ..... $3. per hour
(n) Patent Office and other accommodation drafting $3. per hour
(o) Concomitant Engineering Office services such as making estimates of weights, material quantities, labor or man-hours with construction estimates, etc. ..... $3. per hour

Note No. 1. *Supervision* versus *Superintendence*: In relation to the above schedule of compensation and/or fees, — the much misapplied term "supervision" shall not be substituted for that of superintendence" which involves the services either of a "Clerk of the Works" or that of a "Resident Engineer" whose services the Client shall contract for separately. The Engineer's or Architect's "supervision" of a project does not involve more than periodic review of the progress of the construction-work both as to quality and as to quantity.

Note No. 2. Whenever involved, the Client shall provide the Engineer or Architect with (a) an authentic map of the project-site and its environs; (b) excavating labor for test-pits; (c) test borings; (d) Laboratory tests or material analysis; and (e) any legal services required during the progress of the work. But none of which may be ordered by Engineer or Architect without the Client's consent and direction.

National Council of State Boards of Engineering Examiners

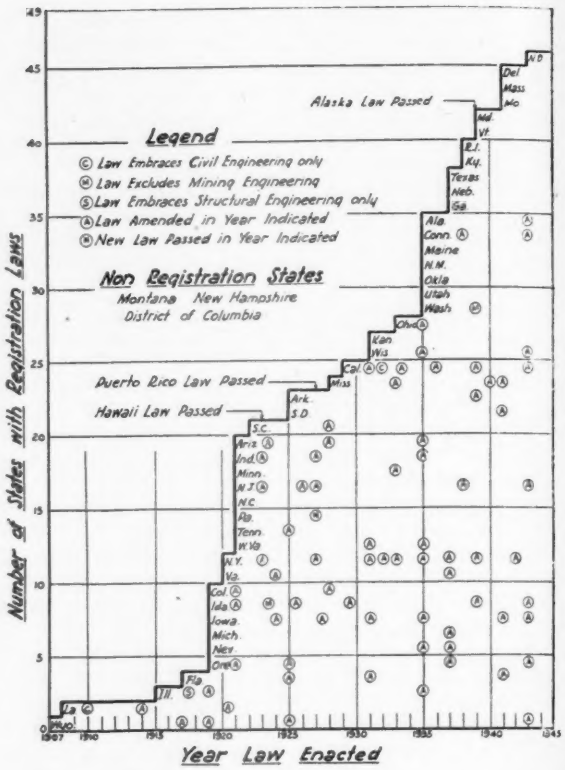
Alaska Law Passed
Legend
© Law Embraces Civil Engineering only
(M) Law Excludes Mining Engineering
(S) Law Embraces Structural Engineering only
(A) Law Amended in Year Indicated
(N) New Law Passed in Year Indicated
Non Registration States
Montana New Hampshire
District of Columbia
Puerto Rico Law Passed
Hawaii Law Passed
Number of States with Registration Laws
Year Law Enacted

Chart of Progressive History of Engineer Registration in the United States

October 1944

BRITISH COLUMBIA

The Blue Print Returns

The first 1945 issue of the Blue Print, official publication of the British Columbia Engineering Society, contains the following:

Editorial

Once again we have to apologize for the non-appearance of our magazine for the past few months. The reason — the paper shortage — the Paper Controller refused to grant the necessary permit. However, in November last a revised Order-in-Council was issued and we now hold a permit entitling us to enough paper to carry on.

We appreciate the patience of our readers and the consideration of the many engineering firms who have supported our publication through their advertising. As previously stated on this page, one of our main objectives, in addition to supplying to the engineering fraternity, both professional and industrial, a medium for the expression of their views on current topics, is to attempt to develop and encourage the formation of a solid body of engineering opinion and discussion on the many problems of the present day. The development of British Columbia industries during recent years has been the result of hard work by all so engaged in the promotion of many basic war industries. Sound engineering knowledge of our capacities has been gained, and the future development of Western Canada in the industrial field is now assured.

Fragments from

STATE & SOCIETY ACTIVITIES

GEORGIA

1945 Year Book

Lack of space prevented warranted recognition of the 1945 Year Book of the Georgia Society in the March Issue.

Following are selections from the Contents which include: Organization and Functions; Objectives of the Society; Historical Outline; Constitution; By-Laws; Distribution of Membership; Officers; Membership Roster; Membership by Districts; In Memoriam.

Historical Outline

The events which led to the origin of the National Society of Professional Engineers during the early part of 1934 were due largely to a refusal on the part of the NRA to grant proper hearings in the interest of the Profession of Engineering, which refusal was made on the grounds that the Engineering Profession lacked a single organization covering all branches of the profession and all sections of the country which could speak for and represent the profession as a whole.

The organization of the N.S.P.E. was completed in September, 1934, with Connecticut, New Jersey, New York and Pennsylvania as Charter Member State Societies with the Illinois Society admitted in November of the same year. The National Society was incorporated on December 10, 1934.

The N.S.P.E. now comprises 25 Member Societies, including Puerto Rico and the District of Columbia, the most recent addition being the State of Kansas. At the present time several other states are actively in process of organization and the coming year will no doubt see a gratifying increase in the total number of State Societies.

At the present time, while nearly fifty percent of the States are represented in the N.S.P.E., the population of these States is considerably more than half of the total population of the country and from the standpoint of registered professional engineers, the present member states contain approximately 74% of the total of more than 74,000 registered engineers in the country. The present active membership in N.S.P.E. is approximately 9,000, which figure represents an increase of 50% in the past two years.

The organization of the Georgia Society of Professional Engineers originated at a general called meeting of all registered professional engineers held in Atlanta during October, 1943. At this meeting an organization committee was selected to investigate the desirability of establishing such a society in this State. This committee held several meetings, solicited members and prepared a suggested outline of a constitution and by-laws and prepared a ballot for the nomination of officers and directors.

The list of charter members of the Georgia Society totals 128 and the Society started to function officially as of January 1st, 1944.

The G.S.P.E. was incorporated in the State of Georgia in April, 1944.

At a general meeting of all members, held in Atlanta on March 6, 1944, and to which were invited all registered engineers in the State, the Georgia Society was formally inducted as a member State Society into the National Society of Professional Engineers with appropriate ceremonies conducted by Harry E. Nold, President of the National Society. Mr. Edward Larson, National Executive Secretary, was also a guest at this meeting.

Membership in G.S.P.E. has grown steadily during the year and it is contemplated that the total membership at the close of this year will be double the charter membership list. The membership is well divided among the various branches of engineering as well as among the several major employment classification groups. The distribution of the membership throughout the various sections of the State follows closely the pattern of distribution of all registered engineers in Georgia.

In April of this year a local chapter was established in the First Congressional District with headquarters in Savannah, Georgia.

Organization and Functions

The Georgia Society of Professional Engineers is a member society in the National Society of Professional Engineers. The National Society was organized to extend the activities and accomplishments of the State Societies on a national scale. The activities of the State and National societies serve primarily to advance Professional Engineering in its movement towards an effectively organized, clearly defined and closely integrated profession. Membership and active interest in this organization directly assists in advancing the principles to which the Society is dedicated.

The Society is organized and functions on three levels; namely, local, state and national. In this scheme each component unit has complete and distinct autonomy. The strength and effectiveness of any group effort lies in the activity of its members on a local basis. This is true of the National Society of Professional Engineers, and every effort is made to promote and encourage the establishment and maintenance of active local chapters in the various State Societies. Only through the combined efforts of strong local chapters can a vigorous State and National Society function to enhance the prestige of the Professional Engineer.

In defining unit areas for the establishment of local chapters a division of the state according to congressional districts is a logical step. Georgia has ten Congressional districts. Therefore, there exist ten defined areas in the state where local chapters should be established and should function for the advancement of the engineering profession and for safeguarding the public in those respective localities.

Savannah has the honor of being the headquarters for the first established local chapter. This is the First Congressional District. Chapters are now in process of organization in the Third, Fifth and Seventh Congressional Districts, with headquarters at Columbus, Atlanta, and Rome, respectively. It is anticipated that in the near future similar steps will be taken in the Sixth and Tenth Districts, which include Macon and Augusta. Where districts are large or include a sufficient number of registered engineers, it is anticipated that eventually more than one chapter will be necessary and desirable in certain districts in order to better administer the aims and objectives of the National Society.

The Georgia Society being young, its major accomplishments necessarily lie ahead. However, important action is being initiated by the Society along many lines, including the sponsoring of amendments to improve and strengthen the law governing the practice of Professional Engineering and Surveying in Georgia and to raise professional qualifications in keeping with the practice in other sections of the Country. It is also being proposed that the State Examining Board be authorized to establish definite recognition of Engineers-in-training as a step towards stimulating the work and professional consciousness of those young engineers

who are seeking future professional status.

The National Society of Professional Engineers has established positive liasion with the National Council of State Board of Engineering Examiners and through such cooperation these two organizations now have established a joint committee of ten members, equally divided, to set up and administer a program of mutual helpfulness from which much good should accrue to the profession.

Through growth, development, activity, and accomplishment the State Society must justify its position as the Profession's legislative, social and economic sponsor and leader in Georgia.

There are certain fundamentals on which the establishment of the National Society of Professional Engineering is predicated. These have been well expressed by Engineer D. B. Steinman, past president of N.S.P.E., and were published in a recent issue of the *American Engineer*. Quoted below in part the following contains many well selected thoughts concerning the Professional Engineer:

1. "Engineering is a Profession. As members of that Profession, it is our moral obligation to strive for its advancement.

2. "Membership in an Engineering Society does not make a man an Engineer. He should be an Engineer before he is admitted to membership. The National Society of Professional Engineers is the only organization in which all the members are Engineers.

3. "The technical problems of Civil, Mechanical, Electrical, Chemical and Mining Engineers are divergent, but the Professional problems are alike. The National Society of Professional Engineers supplies the need of a nation wide professional organization devoted to the common interests and aspirations of all Engineers. It is organized to do for the Engineering Profession what the Medical Association and the Bar Association have done for their respective Professions in increasing prestige, legal protection, public confidence, and professional recognition.

4. "The Engineering Profession needs to be defined, organized and integrated. It is defined by Engineers' Registration Laws. It is organized in the National Society of Professional Engineers, its State Societies, and its county chapters. It is integrated by perfecting the interlocking of the National, State, and County units so that every member of one shall be a member of all.

5. "Every man is a debtor to his Profession. The National Society of Professional Engineers, with its State Societies, is consecrated to fostering the ideals and the traditions of the Engineering Profession, to stimulating public service within the Profession, to guarding high standards of professional honor, and to conserving and strengthening public confidence and esteem. Through membership and active participation in this organization, the individual Engineer renders his contribution toward making Engineering a greater, nobler, and more satisfying Profession than he found it.

6. "The most far reaching benefit to our Profession and to all its members lies in increasing the appreciation and respect of the general public for our profession. Our most important activity is in the field of Public Relations. We must bring home to the public, through the press, the radio, public assemblies and publications, the high qualification of the Engineer, his Professional status, and the outstanding value and supreme importance of his service to modern civilization and human progress.

7. "Membership in a Profession involves a professional obligation and a public trust. It is therefore our guiding purpose to place service before profit, the honor and standing of the Profession before personal advantage, and the public welfare above all other considerations.

There has been presented in the foregoing the scheme of organization and some of the principles around which the Georgia Society of Professional Engineers is built. It is only through the effort of each and every individual member that these principles can be followed and the final objectives attained. The realization of these objectives will do much to advance the professional status of the Engineer in Georgia to the level, which it rightly deserves, along with the other learned professions of Medicine and Law.

GSPE Objectives

1. To cooperate with and assist the Georgia State Board of Registration for Professional Engineers and Surveyors.

2. To protect the public and the profession against the unlawful use of the term "Engineer" and to promote strict enforcement of the Registration Act.

3. To cooperate with all recognized technical and engineering societies in matters affecting professional engineering practice.

4. To assist engineering colleges in the maintenance and strengthening of standards of engineering education.

5. To cooperate with other professions for the advancement of ethical practices.

6. To encourage favorable legislation and to oppose unfavorable legislation as pertaining to engineers and the general welfare.

7. To promote the appointment of representative, professional engineers on public committees, civic boards, and commissions.

8. To secure full utilization of professional engineering services by government and industry.

9. To obtain public recognition of the merits and accomplishments of the Professional Engineer.

10. To establish standards of equitable compensation for engineering services.

11. To promote the interests of the "Engineer-in-training" and to guide him in his efforts to attain professional status.

12. To participate in and promote the development of industry and the conservation of natural and human resources in Georgia.

Ed.: — Congratulations on an excellent job — Georgia!

ILLINOIS

Tentative Schedule Of Minimum Fees And Salaries For General Engineering Services And Including A Proposed Code Of Ethics

(Save For Future Reference)

A code of ethics is an ideal to be lived up to. Like membership in a professional society it apparently brings no direct and tangible return but indirectly both serve to maintain a level of professionalism and respect which places the Society's members among "professionals." In fact it is almost necessary for an organization to maintain a code of ethics in order to be classed, legally, among professional organizations. When supported upon a plane of professionalism by the maintenance of a code of ethics, it is possible, and again legally necessary in some instances, for a society to publish and adhere to a scale of minimum fees and salaries.

The Illinois Society of Engineers, through its Committee on Fees and Salaries, presents in this issue of the *Illinois Engineer*, a Tentative Code of Ethics and Scale of Minimum Fees and Salaries. Both of these have received the approval of the Board of Direction and are published herewith for comment and discussion by the membership of the Society. Members should preserve this copy of the *Illinois Engineer* because there is a strong probability that the adoption or rejection of the code will be called for by letter ballot within the next few weeks.

Credit for the preparation of the code must be given to the indefatigable and enthusiastic committee composed of

H. A. Riedesel, Chairman	B. C. McCurdy
Alex Van Praag, Jr.	Durso Shybekay
J. A. Harman	A. A. Lundgren
F. D. Ellis	Miles Lamb

Section 1. General

Section 2. Minimum Fees for Civil, Mechanical, Structural, Electrical Consulting Services for Building Construction.

Section 3. Standard Form of Agreement Between Owner and Engineer for Professional Services.

Sections 4. Schedule of Salaries for Professional Engineers in Illinois.

Section 5. Schedule of Salaries for Professional Engineers in Public Employment.

Section 6. Tentative Code of Ethics.
Section 7. Statement of Policy.
Section 8. Acknowledgments.

Section 1
General
Division A

The following schedule of basic minimum fees shall apply to general engineering services throughout the State of Illinois:

1. *Cost of Construction*	*Basic Minimum Fees (%)*
Less than $ 10,000	10.0 plus or per diem
10,000 to 25,000	8.5
25,000 to 50,000	7.5
50,000 to 100,000	7.0
100,000 to 250,000	6.5
250,000 to 500,000	6.0
500,000 to 750,000	5.5
750,000 to 1,000,000	5.25
1,000,000 to 10,000,000	5.0
over 10,000,000	4.5

2. The distribution or "break down" of the above schedule as applying to the various percentages for the different cost classifications shall be as follows: (All in percentages of the total fees.)

Preliminary Estimates and Preliminary Reports	5% to 10%
Detailed Plans and Specifications	55% to 60%
General Supervision	35%
Basic Minimum Fee	100%

3. Scheduled fees shall cover engineering services including preliminary estimates and preliminary reports; complete detailed plans and specifications, and detailed estimates of costs; general supervision of construction, including line and grade surveys; preparation of monthly and final estimates for contractors' payments. The schedule of fees does not include property, boundary, or right-of-way surveys; inspection of construction; shop, mill, field or laboratory inspection of materials; costs of test borings and other sub-surface explorations; or calculations of special assessments; such latter services satisfactory to the Engineer, shall be furnished by the Client as and when necessary in the proper conduct of the undertaking, or, at the Client's choice, may be provided by the Engineer at his actual cost, as provided in paragraph 10 (c) hereof.

The Engineer shall determine and furnish all necessary resident supervision and the Client shall pay the actual cost thereof, as provided in paragraph 10 (c) hereof, in addition to the basic minimum fees.

"General Supervision" is defined as supervision of the construction by periodical visits by the Engineer or his representative from the office of the Engineer.

"Resident Engineer" is defined as the representative of the Engineer who has responsible charge of the construction work and spends a substantial part of his time on the work.

"Inspector" is defined as a person who inspect the construction in detail under the supervision of the Engineer or a representative of the Engineer.

4. Basic Minimum Engineering Fees shall be used for bridges, buildings, power plants and electrical transmission, distribution and street lighting systems, sewerage and sewage treatment improvements, water works and water treatment improvements, transportation and communication systems and equipment.

Paving, sidewalks, heavy grading and extensions of water and communication or electric lines for local service shall be subject to a reduction of one per cent from the above basic Engineering Fees. These reduced basic engineering fees shall include resident supervision, but do not include inspection for the various classes of work specified in this paragraph.

5. The above schedule is understood to be minimum fees for normal conditions and shall be increased for delays and for difficult or unusual conditions.

6. Should the Engineer be required to render additional service because of changes, delays or other causes beyond his control, then the Engineer shall be compensated for such additional services on the basis of a per diem or monthly rate to be agreed upon between the Engineer and the Client, but not less than the minimum schedules herein for monthly compensation.

7. Basic Schedule Fees may be reduced twenty-five per cent (25%) for services to Architects or other Engineers by mutual consent and agreement or where reciprocal privileges are accorded.

8. The Basic Fee includes the furnishing of three (3) copies on paper of reports, plans and specifications. Additional copies shall be furnished to the client at cost. Original documents, survey notes and tracings are and shall remain the property of the Engineer.

9. The minimum fee for "Preliminary Estimates and Preliminary Reports" as set forth in preceding breakdown of the basic fee is not intended to cover engineering services in connection with preliminary investigations and reports involving detailed consideration of operations, maintenance and overhead expenses, or the preparation of rate schedules for the sale of utility service, and consideration of the economic feasibility of such projects as municipally or privately owned electric or other public utilities of a competitive nature. Fees for engineering serviees in connection with preliminary investigations and reports of this nature shall be not less than fifteen per cent (15%) of a basic minimum engineering fee (expressed as a percentage in paragraph two as applied to the Engineer's preliminary estimate of the project.) Should the Engineer be engaged subsequently to furnish detailed plans and specifications and the general supervision of construction, a part of the per diem or lump sum fee for the preliminary investigation and report equivalent to five to ten (5-10) per cent of the basic engineering fees shall apply as a credit on the basic fee.

10. Minimum Per Diem Fees shall be charged as stated in this paragraph.

(a) Fees shall be based on a per diem rate where the nature of the service to be rendered by the Engineer is such that a percentage fee is not adaptable or convenient, such as consultation and preliminary investigations. The fee for the Engineer shall be at the rate of $40.00 per day, with rates above this minimum commensurate with the nature of the service and the experience and professional standing of the Engineer with a basic minimum charge of $10.00 for brief consultation.

(b) Fees for services in connection with legal proceedings shall be at the minimum rates of $50.00 per day for the Engineer with a minimum of $15.00 for brief court appearances such as identifying a map, or other appearances of a minor character, not involving more than two hours.

(c) All services of assistants, draftsmen, etc., deemed necessary by the Engineer, shall be paid for at actual cost plus one hundred per cent (100%) for overhead, "readiness to serve" and profit, or at an equivalent minimum per diem rate, and in either case "outside expense" at net cost. The term "outside expense" shall include transportation and sustenance incurred by the Engineer or his assistants traveling in discharge of duties connected with the work, and shall include the net cost of incidental expenses such as telegrams, telephone toll charges, extra reproductions of prints or photos of drawings, specifications and other documents required for the proper execution of the services for the Client.

11. Lump Sum Fees. Fixed lump sum fees shall not be less than those computed on a per diem or percentage rate.

12. Violation. Non-compliance with the terms of this schedule will be considered as unethical practice by the Illinois Society of Engineers, Inc.

Section 4

Minimum Schedule Of Salaries For Professional Engineers In Illinois

Division C

Foreword

The schedule of salaries for professional engineers and their engineering assistants as presented herein is predicated upon permanent employment which is here defined as continuous employment for twelve (12) months or longer. It is intended also that a salary normal to a given location will be supplemented by allowances that will compensate for travel and similar expense occasioned by service at other than the home location.

When it is necessary to move the official headquarters or home of a professional engineer for the benefit of his employer, the expense necessary for moving the professional engineer's household goods and personal effects, not exceeding 7,000 pounds, should be paid by the employer, in addition to the individual's travel and subsistence expense. The travel and shipping route should be the most direct route taken by recognized common carriers.

In the application of these schedules the salaries should be based upon the type of work performed and the responsibilities assumed. The classification of any individual does not imply that the individual is unqualified to assume the responsibilities and duties of any higher grade; neither should mere length of service be regarded as the sole basis for the determination of grade and salary.

The salaries as prescribed are established as proper for engineers within the State of Illinois, the range in salary being sufficient to embrace differences in cost of living as well as differences in magnitude or importance of work, and the qualifications of the individual as graded herein.

Minimum salaries shall be at or within the rates for the several grades of employment, as follows:

Sub-Professional

Grade 1	$1,200	to	$1,500
Grade 2	1,500	to	1,800
Grade 3	1,800	to	2,000
Grade 4	2,000	to	2,600
Grade 5	2,600	to	3,500

Professional

Grade 6	$3,500	to	$4,400
Grade 7	4,400	to	5,600
Grade 8	5,600	and	up
Grade 9	10,000	and	up

Section 8

Acknowledgment

In preparing the Schedule of Fees for Professional Engineers in the State of Illinois, data from several sources have been studied. The 1941 Schedule of Fees of the Ohio Society of Professional Engineers resulting from a six-year study by that Society, the 1943 Schedule of Fees adopted by the Washington Society of Professional Engineers, and that of the Pennsylvania Society of Professional Engineers have been used as guides. The Schedule of Minimum Fees and Salaries from the Minnesota Association of Professional Engineers, the New York State Society of Professional Engineers and the Summary of Salary Range Recommendations and Specifications supplied by the Department of Finance, State of Illinois, have been of material assistance.

KANSAS

Re-elects Officers

From Secretary Munger of the Kansas Society comes the following (received just too late for the March issue):
Editor, American Engineer

The Kansas Society of Professional Engineers cancelled its Second Annual Meeting, scheduled for 31 January, in compliance with the spirit of the request of the Office of Defense Transportation. In order to carry on the essential business of the Society, the Board of Directors met in Topeka on the date set for the Annual Meeting and with local Members conducted a token Meeting to comply with the terms of the Constitution.

The letter ballots of the Membership were canvassed and all incumbent officers were found to have been re-elected by substantially unanimous votes. It was the expressed opinion of several Members that until the new Society was more firmly established the present list of officers should be continued.

The Secretary's report showed that, from the date of the completion of the organization to the end of the year, the Society had made a net gain in membership of 31 percent and now has a membership of 42, or 14 percent of all eligibles.

Vice President Bruce Williams, of N.S.P.E. attended the Meeting as representative of the National Society, gave the Officers and Members the benefit of his counsel on various matters of debate, and at the dinner session gave a very interesting and informative talk on the objectives, plans and present activities of the National Society.

K.S.P.E. is at present cooperating with other organizations in the state to secure the strengthening of the present Kansas Registration Law. The Legislature is at present in session and prospects seem to be fair for securing an amendment that will provide for certification of Engineers-in-Training as well as make compulsory the present optional registration provisions. A joint Committee of all engineering groups in the state is actively supporting the amendment.

An amendment to the By-Laws of the Society was adopted providing for a standing committee on Employment Conditions and a special committee was established to continue negotiations with the NLRB concerning regulations affecting Engineers.

Harold H. Munger, Secretary

Reports

Secretary

To the Board of Directors:

The first year of the history of our Society has been largely occupied in laying the foundations on which we hope to erect our future structure. It is the belief of your Secretary that those foundations are well laid on solid bedrock, and that we can proceed to build with no fear of any disastrous subsidence beneath our structure. Our structure has not yet risen to impressive heights, but we are making progress. When we adopted our Constitution and set up a permanent organization, we numbered 32 Charter Members. One member died, and 11 new members were added during the year. As of January 1, 1945, we have 42 Members, a net gain of 31.25 per cent since organization. This represents sound and healthy growth. If we can continue the same proportionate rate of growth, we will, in ten years, have more Members than the present roster of Professional Engineers of the entire State. This is not stated as a prediction, but simply to show that there is no cause for discouragement.

The activities of the State Society in connection with legislative and professional matters are not yet of great magnitude, but we can truly say that we are doing our full share in advancing the interests of our profession. As our numbers increase, the results that we can accomplish will increase in proportion.

Our membership is at present distributed in 14 counties of Kansas, in 3 other states, and the District of Columbia. On the basis of latest information on the present location of our Members, the center of gravity of our membership is approximately at Overbrook. Topeka leads the list, with 16 Members: Others are Kansas City 5; Pittsburg and Manhattan 3 each; Wichita and Washington, D. C. 2 each; 12 others are located in as many counties. There is no reason why we should not, in a few years, have six or more local Chapters with 50 or more Members each, covering the entire State, and forming an integral part of a National Society that, by that time, will number 20,000 Professional Engineers on its rolls, and will have active branches in every state in the Union.

That is our objective. Let's go!

Respectfully submitted,
Harold H. Munger, Secretary

Treasurer

Submitted herewith is the Treasurer's Report of the financial status of the K.S.P.E. as of December 31, 1944.

Receipts:		
Annual dues received from members,	$210.00	
Refunds from N.S.P.E.	92.00	$302.00
Disbursements:		
Vouchers paid	176.16	176.16
Balance on hand Dec. 31, 1944,		$125.84
I am pleased to report that on January 26, 1945, the credit balance is		$209.34

Respectfully submitted,
K. E. Rector, Treasurer, K.S.P.E.

Public Relations

January 31, 1945

To the Board of Directors
Kansas Society of Professional Engineers
Gentlemen:

During the year 1944 the Public Relations Committee of the Society has provided The Topeka Daily Capitol and The Topeka State Journal with news items and pictures totaling about 60 column inches. Most of this was in regard to organizational meeting.

Respectfully submitted,
H. A. Marshall, Chairman
Public Relations Committee

Program

The following is a brief report of the Program Committee for the year 1944, and a statement relative to the program of 1945:

For the record, the First Annual Meeting of the Kansas Society of Professional Engineers was held at the Koci Tea Room, 835 Tyler St., Topeka, Kansas, on June 3, 1944. All arrangements for the program were made by the "Committee on Constitution and Plan of Organization."

Following the appointment of chairmen of Standing Committees on June 17, 1944, preliminary arrangements were started for the program of the Installation meeting to be held on October 6, 1944.

The Installation meeting was held at the Jayhawk Hotel, Topeka, Kansas on October 6, 1944, following a dinner in the Florentine Room at which over a hundred engineers and friends were present.

Arrangements were practically completed for the program of the Second Annual Meeting of the Society, to be held in Topeka on Jan. 31, 1945, when at the request of the ODT, it was canceled, except for the meeting of the Board of Directors to be held at the City Auditorium.

Any definite arrangements for a program during 1945 are being withheld and will be adjusted to best serve our country's and professional needs.

Respectfully submitted,
Abraham Pratt, Chairman

MINNESOTA

News Letter Prompt

The March Issue of the Minnesota Association News Letter has been received on time for use in the April American Engineer. Dated March 5th, the Bulletin arrived March 9th. Thanks Minnesota for collaboration!

Quoting from the News Letter:

Our Streamlined Wartime Conference

In compliance with the wartime order of War Mobilizer James Byrnes, M.A.P.E. conducted a condensed, two-day version of its annual conference February 22-23 at Hotel Nicollet, Minneapolis. While we regret that our state-wide membership could not attend, we hope that next year the situation will be back to normal. To supplement reports which your councillors will make, we shall highlight a few of the activities of the meeting:

New Officers

With a year of many noteworthy accomplishments chalked up to their credit, the retiring officers turned over their duties to N. T. Rykken, Minneapolis, President; Al Kircher, Mankato, Vice President; Howard Bussard, Marshall, Treasurer; and S. P. Kingston, Rochester, Secretary. Retiring President Stolte was named National Director, with Ray Herrmann as alternate. Grant Waits was named representative to the N.S.P.E. annual meeting, with Walter Wheeler as alternate.

Membership

We gained 85 new members during the year — our greatest annual gain since the year of formation, incidentally — making our total now 453. Our goal this coming year is 550 plus so that we will represent 50 percent or more of the 1098 presently registered professional engineers in Minnesota. Here's how the districts recorded their gains: District 1 — 5 members; District 2 — 1; District 3 — 2; District 4—21; District 5—32 plus 4 junior members; District 6—2; District 7—3 plus 1 junior member; and District 8 — 14.

Legislative Matters

House File 596 and Senate File 461 are now in committee and each one of us must exert that extra effort to keep in touch with our legislative members. It is imperative that we bring our year's educational program to a logical conclusion by ensuring the passage of our proposed amendments to the Registration Act. It was brought to our attention that some opposition exists in the construction industry, and this calls for our attention, also.

Constitution And By-Laws

There are only two significant changes in our Constitution and By-Laws. One makes the National Director a voting member of the Council. The other makes specific provision for membership and payment of dues to the Minnesota Federation of Engineering Societies.

Move By County Engineers

Benny Leonard of Rochester, representing the county engineers, explained a bill which they are sponsoring, to set a floor on wages for county highway engineers. Like provisions are found in a bill being introduced for elective county officers, which legislation we endorsed.

Employment Practices

Attorney McCabe of Duluth, who has been so helpful to us in our work during the past year, has notified us that certain members now on our Employment Practices Committee are eligible for work on this committee; that three are "not objectionable; and that two have been found unavailable."

President's Message

Here are a few of the "jobs to be done in 1945", according to retiring President Stolte in his conference address:

1. Gain at least 50% of the registered engineers as members of M.A.P.E.
2. Continue our vigilance over legislation affecting us and especially insure passage of proposed registration act amendments.
3. Analyze state and governmental positions that should be filled with professional engineers.
4. Adopt standard contract forms and include it in Fee and Salary booklet.
5. Study Code of Ethics and Fee and Salary schedule for possible improvements.
6. Plan to organize District 9.

WLB Program

Arrangements are going ahead for inauguration of a radio series on WLB, the University of Minnesota station. Plans are to dramatize a number of engineering projects in such language that they will be interesting to the average listener.

Welcome To New Members

We welcome the following men who have joined us since our last News Letter:

Carl Posey, District Airport Engineer, Civil Aeronautics Admn.,

St. Paul; Francis J. Magnuson, City Engineer, Rochester; Lt. Col. Steve Gadler, Planning, U.S. Army Air Forces, Washington, D. C.; Eldon M. Collins, Agricultural Engr., U.S. Soil Conservation Service, Red Wing; Edward C. Silver, Mining Engineer, Oliver Iron Mining Co., Chisholm; Dennis M. Ryan, Extension Engineer, University of Minnesota, Minneapolis; Leonard J. Larson, Assistant Agricultural Engineer, U.S.D.A. Soil Conservation Service, Rochester; Paul G. Velz, Civil Engineer I, Minnesota Highway Dept., Brainerd; Lloyd J. Knuth, Civil Engineer, Minnesota Highway Dept., Brainerd; Ralph E. Monson, City Engineer and Supt. Water Dept., South St. Paul; Robert L. Olson, Instructor, A.A.F. Bombsight Maintenance School, Lowry Field, Colo.; W. E. Rodgers, Civil Engineer I, Minnesota Highway Dept., St. Paul; LeRoy A. Griffith, Chief Electrical Design Engineer, Minneapolis Honeywell Regulator Co., Aero. Division, Minneapolis; Carlo D. Koski, Treas., Plastics Consultant, Management Engr. Inc., Minneapolis; Arthur M. Anderson, Mining Engineer, Pickands Mather and Co., Virginia.

Committee Reports

Press Publicity, Editing and Publishing

During the past year your Press Publicity, Editing and Publishing Committee were assigned many duties, the most important of which was the publishing of the Fee and Salary Schedule.

The first meeting was called for Tuesday, March 28, 1944 to be held in the association office, 1010 Guardian Building, St. Paul. Two members of the committee and the Chairman were present. At this meeting the preliminary details for the publication of the booklet containing the Fee and Salary schedule were discussed. With the assistance of the State Secretary, Mr. Harold E. Olson, and Miss Katherine Feucht, the material was assembled and later proofed. The book was ready for distribution in June. This report contains a copy of the publication.

On August first, a letter suggesting methods for obtaining better publicity for the district societies was mailed to all district secretaries. A copy of the same is included in this report. The Committee, however, did not receive copies of news releases obtained by the other districts, and regrets they cannot be included.

During the year notices of all meetings of District No. 4 and No. 5 were sent to the press and very favorable column space was received.

During the year, the Committee submitted material for publication in the *Bulletin.*

As Chairman of the Press Publicity, Editing and Publishing Committee, I wish to extend my appreciation and thanks for the cooperation of all members of the committee, to Miss Katherine Feucht, Miss McEchern in St. Paul for her splendid assistance in relation to the press, and to Mr. Harold E. Olson.

William G. Klett, *Chairman*

Civil Service

The principal activity of this committee has been to follow the progress of Public Administration Service of Chicago, which has been engaged since August 1944 in making a survey of State civil service classifications and salary ranges, preparatory to making a recommendation to the Civil Service Board for a sound pay plan.

A conference was had with Mr. Earl V. Bradsher, representative of Public Administration Service, on November 22, 1944 at which was presented the Salary Schedule for professional engineers and their engineering assistants, adopted by M.A.P.E. at its annual meeting in February 1944, together with an adaptation of the chart showing comparative salary scales of various engineering organizations, which was sent out with the news letter in November.

The salary recommendations prepared by Public Administration Service, released on December 22, 1944, were studied by members of the committee and a communication was prepared and submitted to the Civil Service Board on January 5, 1945, pointing out the wide difference between engineering salaries recommended therein and the schedule of salaries as set up by M.A.P.E. At the public hearing held by the Civil Service Board on January 8, 1945, the Civil Service Committee and M.A.P.E. was ably represented by Dr. R. R. Price, Executive Secretary, who urged that the board consider the engineer in the same light as the other learned professions when passing on the salary recommendations.

It is this committee's intention to follow the recommendations with regard to engineers' salaries, when they are submitted to the Legislature, and to urge favorable consideration by the proper committees of M.A.P.E.'s recommended schedule.

E. J. McCurrey, *Chairman*

University Contact

On November 18, 1944 your University Contact Committee submitted a report relative to the proposed two--year subprofessional courses under consideration by the Institute of Technology at the request of the Veteran's Bureau. Your committee recommended the endorsement of this program together with the change of the standard professional course to a five-year basis in place of the present four-year term.

Since the submission of this report, I am informed by Dean Lind that the following developments have taken place:

1. The program of two-year termination courses has been approved by the University Board of Regents, but the number of returned veterans applying for this work is not yet sufficient to permit the establishment of special classes.

2. The change from four to five years as the standard term of the professional engineering course is now under active study and consideration by the faculty of the Institute.

3. A program is now being prepared for the institution of orientation courses for the senior class of the Institute. Under this program, lectures will be given by practicing engineers to members of the senior class, and it is hoped that these lectures may be started during this coming spring quarter.

Edwin F. Jones, *Chairman*

MISSOURI

Board of Directors Meets

The Missouri Engineer for February advises that President Williams called the Board of Directors together for its first annual meeting on February 3rd and 4th. Excerpts from the publication state that:

The Board deliberated at great length on the policy to be followed in securing individual membership in the National Society to the end of complete affiliation with that society. At present the MSPE enjoys all the privileges of a fully affiliated state society while proceedings on a program of increasing our membership in NSPE toward the required 75% with all registered engineer members belonging to the National Society. T. J. Skinker is chairman of the committee working on this problem. More time was devoted to this subject than to any other on the agenda. Discussions, led by J. B. Butler and E. W. Carlton, on the rapidity and intensity with which such a program should be followed.

A program for the encouragement of Registration of the engineers in the state won the support of all the members of the board. The committee, headed by O. J. Lamb, will soon sponsor this work among the chapters and other areas not reached by the chapters.

Roster of Officers

Officers

Bruce W. Williams, Joplin	President
E. R. Schultz, Cape Girardeau	1st Vice President
C. G. Roush, Kansas City	2nd Vice President
T. J. Skinker, St. Louis	3rd Vice President
H. J. Bruegging, Jefferson City	Secretary Treasurer

Past Presidents On Board

A. H. Baum, St. Louis	1942
C. P. Owens, Jefferson City	1943

Directors-At-Large

L. A. Weeks, Springfield	1944-1945
V. H. Lyon, Jefferson City	1944-1945
R. E. Riddle, St. Joseph	1944-1946

C. P. Owens, Jefferson City ..... National Director
A. R. Waters, Kansas City 1944-1946
J. B. Butler 1945-1947
H. E. Frech 1945-1947
J. B. Butler, Rolla ..... Historian

Chapter Officers

Rolla Chapter
Chairman
E. W. Carlton, Rolla
Vice-Chairman
Dr. Edward L. Clark, Rolla
Sec. Treasurer
E. T. Perkins, Rolla

North Missouri Professional Engrs. Club
Chairman
E. E. Zelade, Macon
Vice-Chairman
Proctor Pierce, Moberly
Sec.-Treasurer
J. D. Barber, Macon

Engineers Club of Jefferson City
Chairman
V. H. Lyon, Jefferson City
Vice-Chairman
W. Q. Kehr, Jefferson City
Sec.-Treasurer
Abner Gwinn, Jefferson City

Southwest Missouri Chapter
Chairman
J. R. Ellis, Joplin
Vice-Chairman
H. W. Gullette, Joplin
Sec.-Treasurer
Murray W. Ayres, Joplin

Western Missouri Chapter
Chairman
George Dysart, Kansas City
Vice-Chairman
R. E. Welsh, Kansas City
Sec.-Treasurer
S. H. Pollock, Kansas City

Southeast Missour Chapter
Chairman
Fred D. Harris, Sikeston
Vice-Chairman
Felix M. Robbins, New Madrid
Sec.-Treasurer
Wayne Berry, Cape Girardeau

Northwest Chapter
Chairman
J. L. Brown, St. Joseph
Vice-Chairman
A. T. Waddell, St. Joseph
Sec.-Treasurer
G. L. Robinson, St. Joseph

Ozark Chapter
Chairman
W. M. Gaylord, Springfield
Vice-Chairman
Garvin Dyer, Springfield
Sec.-Treasurer
W. E. Hedges, Springfield

NEW YORK

Opposes Special Legislation

Bearing the date of March 1st the following letter, which is self-explanatory, calls upon Chapters and Committee members to muster legislative opposition to a proposal that has its source in a foreign state.

March 1, 1945

To The Members Of The Legislative Committee and To Chapters:

At the meeting of the Executive Board of the New York State Society of Professional Engineers in Albany on February 23-24, action was taken concerning the bill, Sen. Int. No. 837—Coudert (to amend the Education Law for the benefit of the Engineers Public Service Company of Delaware, which wishes to quality in this state) to the effect that our entire strength should be mobilized via the County Chapters in opposition to this bill.

Will you therefore get in touch with your Senators and Assemblymen immediately, stating our position concerning this bill. (For the benefit of those who do not have the last issue of the Legislative Bulletin at hand, I am summarizing below the provisions of the bill and the reason for our opposition.)

It will be noted that while this bill has been introduced primarily for the benefit of the Engineers Public Service Company, the bill itself is general and would apply to any corporation, and it is in direct contradiction to the engineers licensing law.

Sen. Int. No. 837—*Coudert* (*No Assembly Bill*) *An Act, to amend the education law, in relation to professional engineers and architects* (*Referred to Education Committee*)

The proposed amendment contains new material as follows:

"Nothing in this article shall prohibit a corporation organized and existing prior to the 15th of April, 1935, under the laws of any state other than the state of New York, the name of which includes the word "engineers", from obtaining a certificate of authority to do business in the state of New York, provided that the business proposed to be done by such corporation within this state, as set forth in the statement and designation provided for by section two hundred ten of the general corporation law, shall not include the practicing within this state of professional engineering or land surveying."

The bill is anomalous from the standpoint that the corporation wishes to use the term "engineers" with the guarantee that they will have nothing to do with engineering, whereas the Education Law specifically provides that only the people engaged in the practice of engineering shall use the term.

* * *

* * *

Please, therefore, contact your Senators and Assemblymen at once regarding this bill, urging that the bill be amended to provide that the engineering work authorized under the bill is done according to law by *licensed professional engineers.*

Sincerely,

Robert C. Wheeler, Chairman
Committee on Legislation

Bronx County

The untimely death of President John H. Knight of Bronx Chapter was a severe loss both to his friends and his profession. Long active, yet modest almost to a fault, President Knight typified the finest in character and professional practice. Charles W. Giraud, one of the sponsors of the Professional Engineering Society in New York succeeds Mr. Knight as president of the Chapter.

Niagara Chapter

The Niagara News Bulletin contains an appeal based on data from the State Society News Letter:

Facts and Figures

The facts and round figures relating to an Executive Secretary given in the State Society News Letter of January 16, 1945, are approximately as follows:

Members of State Society	2,000
Registered Engineers eligible for membership	11,000
Present State Society dues	$ 5,000
Present income (less dues not paid)	$ 9,000
Present expenses	$ 9,000
Additional expenses for Executive Secretary	$15,000
Increase in membership at present dues to finance Executive Secretary	$ 3,000
Annual dues at $10 will provide increase in revenue	$10,000
Increase in membership at $10 each necessary	500

From the foregoing, if we propose to spend $15,000 for an Executive Secretary, it seems evident that an increase in dues and an increase in membership will be necessary. While we hope for a future working membership in excess of 5,000, there is no immediate prospect of our reaching this figure. On the other hand, we believe the majority of our membership are aware of the need of an Executive Secretary, realizing the many benefits which will accrue to the Society through his efforts. Even with a 25% increase in membership to 2,500 we still need a $5.00 increase in dues in order to carry the additional financial burden which will result from the employment of an executive secretary.

Westchester County

According to the Westchester County Chapter Bulletin:

The February meeting in White Plains had an attendance of more than fifty. The description of the raising of the ship "Normandie" given by Mr. A. C. W. Siecke, Consulting Engineer and Senior Naval Architect of the Merritt-Chapman and Scott Corporation, was a fascinating story, covering the life, death and resurrection of the vessel.

One marveled at the delicate operation of raising and righting the ship from its position in deep mud, and the success of the job is a tribute to the engineers, not to mention the divers, who did the work.

The following nominations for Chapter officers and directors for the coming year were announced: 1st Vice President—George

T. Macbeth; 2nd Vice-President, Reeves Newsom; Secretary, Jackson H. Taylor; Treasurer, Wm. H. Van Tassel; Directors, Lloyd C. Medcalf; Max L. Vogel; Alex S. Traub, Jr.; Caldwell B. Spates; Raymond W. Murphy; Wm. L. Wenzel.

Three directors are to be elected to succeed Messrs. Vogel, Wenzel and Brandes, whose terms expire.

Dues

A resolution was passed, supporting the proposed action of the State Society to increase the annual dues. Present dues are comparatively modest and more funds are necessary to carry out the expansion program of the State and National bodies.

Legislation

The Legislative Committee directs our attention to the following bills which have been introduced at Albany: Assembly int. 578 (Emma); Assembly int. 697 (Crews)—Senate int. 596 (Parisi); Senate int. 837 (Coudert).

The first two bills seek to broaden the definition of "employee" for labor law purposes, so that they would include professional engineers. The Society opposes these bills because the proposal is incompatible with the professional status granted under the license law. The third bill would permit certain corporations to use the term "Engineer" in their title, whether or not they engaged in professional engineering. Members are requested to voice their opposition to these measures. See Chairman Terenzio of the Legislative Committee for details.

OHIO

March Ohio Engineer

The March issue of the Ohio Engineer, a 16 page publication, arrived in time for use in the April Engineer. Thanks to splendid cooperation! Items from Ohio include the following:

President's March Letter

Fellow Engineers:

First of all I want to thank each and every one of you for the great honor you have given me by electing me as your president for the coming year. I assure you all that I will do my best to make 1945 one of the best years we have ever had. To do this we must all work together and I know you will all do your part to the utmost of your ability.

In order to achieve success we must have active committees. These committees are now being made up, some having been already completed. So far every engineer asked to serve as a committee chairman has accepted his assignment and I want to thank each one who has been so willing to help in this way. This certainly shows the fine spirit in our organization and I know with such willingness to serve on the part of so many of our members our work this year will be a real pleasure.

I would like to visit all of the Chapters this year, but I know this will be impossible. I will, however, try to visit as many as I can and trust that you will feel free to visit the monthly Trustees meetings which are held in Columbus the first Friday of each month.

John F. Hale

Engineers A Part Of Management

Jack Kennedy, Director
National Society of Professional Engineers
Akron, Ohio

Dear Jack:

In regard to the election (held in January 1945, I believe) in the B. F. Goodrich Company plant in Akron amongst the office workers to determine what union, if any, was to represent them—

The engineers were considered to be a part of management, as were also secretaries, those people who worked on payrolls, and some others doing office work regarded as confidential. Since the engineers were considered as being part of management, they were not regarded as being any part of a bargaining unit to be represented by a union and hence were not concerned in the election in any way.

So far as we can determine, there is nothing in Federal law which so specifies. This ruling was apparently developed for this particular occasion as the result of arbitration by the union, company and government representatives concerned with the election, which was held under government supervision as is usual.

We have no information as to the basis on which it was determined whether or not certain individuals were to be classed as engineers.

The engineers first knew of this arrangement by indirection (so Engineer Otto Sords, one of our Akron District Society members tells me) when notices appeared on the Company bulletin boards listing those eligible to vote in the election. The engineers names were *Not* on these lists.

Yours truly,

T. C. Dee, Trustee

Editor's Note: We understand on good authority that the influence of members of our Akron Chapter brought about this recognition of engineers as a part of management.

Membership Report
(As of February 28, 1945)

Total Membership 2294	% Inc.	Increase	Jan. 1 1945	% Reg. Engrs.	1945 Dues
Marion	3	2	66	55	23
No. Central	6	5	87	53	38
Midwestern	4	2	51	51	7
Muskingum	0	0	24	50	0
Dayton	0	0	132	46	34
Central Ohio	1	1	87	45	29
Ohio North	8	2	25	44	12
Akron	3	9	270	41	15
Portsmouth	4	1	23	41	11
Springfield	0	0	37	36	2
Hocking Val.	0	0	39	36	0
Lake Erie	0	0	60	34	0
Sandusky—O—S	17	4	24	34	15
Maumee Val.	8	4	49	33	22
South. Ohio	5	2	37	33	22
Miami	6	2	35	33	16
Canton Reg.	5	5	111	32	34
Franklin Co.	9	22	252	27	63
Toledo	1	1	133	27	62
East Ohio	0	0	24	25	0
Zanesville	0	0	28	25	10
Mahoning Val.	0	0	106	23	38
Gallia—J—L	0	0	13	21	0
Jefferson Co.	8	1	12	20	13
Cleveland	0	0	323	18	0
Northeast	0	0	28	18	11
Cincinnati	10	14	135	16	92
At Large	20	1	5		2
		78	2216		558

NOTE: Table is arranged in order of percentage of Registered Engineers and Surveyors who are members of the Society. Let's get the pace for "4000 in '45".

Chapter Activities

Akron (on the ball all the time). Copies of complete minutes from Secretary Sauter tell of a dinner meeting of the chapter's Board of Directors on February 6th, of a dinner meeting of committee chairmen on February 15th and of a dinner meeting of the chapter on February 22nd. A new chapter publication, dues, legislation, membership, committee reports and a lot of business were discussed.

Canton—"Cleaning Up the Ohio River" was discussed by Mr. Don Davis at the January 18th dinner meeting. The election results were announced. The amendment to hold the next annual election in May, 1946 passed. A meeting for February with five Chinese speakers, two of whom were graduates of M.I.T. was announced.

Central Ohio (Best attended meeting this month). With 75 members for dinner their new president Williams reported the Chapter status and outlined his proposed method of operation for the year (*This chapter sells tickets to their dinner meetings*). A film which styled the new gas combustion turbine of Allis-

Chalmers as "a tornado in a box" was shown.

East Ohio—Their announcement of a joint meeting with the Pan Handle Chapter of the West Virginia Society of Professional Engineers was signed by the secretaries of each chapter. Mr. Coleman of the Wheeling Steel Corporation was announced as the speaker.

Franklin County—The Columbus Engineer carries a notice of the dinner meetings planned for the next four months. March 13, Raymond C. Blaylock Chief Engineer of Curtiss-Wright; April 10, Hon. Frank J. Lausche, Governor of Ohio; May 1, W. E. Wickenden, President of Case School of Applied Science and June 12, Perry T. Ford, Director, Ohio Department of Highways. The chapter boasts of the only known husband and wife membership in O.S.P.E. A joint meeting with the A.S.C.E. on postwar planning was held in February.

Mahoning Valley (*announced six new members*). With 64 at their dinner meeting and the approval of six new members it looks like Mahoning Valley meant to reach 200 this year. The constitution amendments passed. The speaker was Dean Louis A. Deesz, Dean of Engineering, Youngstown College. The subject was "Engineering in Russia."

Maumee—The pictures "We Will Come Back to Guam" and "Alaska's Silver Millions" furnished the entertainment. Two new members were announced.

Marion—With 5 news items for publicity there were 55 in attendance at the February meeting. Two engineers and two sales-department men from Cooper-Bessemer Corporation at Mt. Vernon showed sound films, gave talks and led discussions on Diesel engines.

Miami—The secretary in a letter announcing the February meeting also announced two new members. He reviewed the huge success of the week-day noon luncheons held in Middletown.

North Central—With 60 in attendance and O.S.U. football pictures for entertainment the chapter held its annual meeting with committee reports, etc.

Portsmouth—A monthly meeting announcement was received. It's a little mysterious but a very interesting announcement.

Sandusky-O-S—The annual meeting was held in Fremont and the only items mentioned were business and election.

Toledo—The Toledo Chapter reported 200 in attendance at a technical council meeting which they sponsored. Some 1500 members of the 16 organizations in the council received our O.S.P.E. brochure with the announcement of the meeting. "The Future of the Jeep," by Walter F. Benning of Willys-Overland Motors, Inc., was the timely subject discussed.

PENNSYLVANIA

North East Chapter

North East News contains the following notes:

Ohio has the largest State Society in the National Association, New York second and Pennsylvania third, but its position is being seriously challenged by two other states.

In percentage of registered engineers who belong to our Society, Northeast stands third, with 32.5%, challenged by Johnstown with 32%. Reading and Midwestern top us with 44% and 40% respectively.

It is with great sorrow that we report the death on January 18 of Fred K. Derby, a member of Northeast Chapter since 1941, the year in which it was chartered. Engineer Derby's career was an illustrious one. He held engineering positions in Montana, New Mexico, Nevada and Pennsylvania. He was Mayor of Scranton from 1930 to 1934. He also served as City Engineer, City Mining Engineer, Director of Public Safety, in the Legislature, County Republican Chairman, and at the time of his death was County Detective. His passing is a distinct loss to his family, the society and the community.

Chapter Officers

President, John P. Gilboy, Scranton, Pa.; Vice-President, George H. Wilson, Scranton, Pa.; Vice President, Chas. Enzian, Wilkes-Barre, Pa.; Vice-President, W. H. Dietrich, Hazleton, Pa.; Secretary, F. D. Shoemaker, Scranton, Pa.; Treasurer, W. H. Bircher, Scranton, Pa.; State Director, J. R. McCormick, Scranton, Pa.; Alternate State Director, P. E. Stauffer, Wilkes-Barre, Pa.

RHODE ISLAND

Officers For 1945

Secretary DiMase advises that the officers for the current year are:

Executive Board

President, Francis W. Cullinan; Vice Presidents, Charles E. Blais, Carmen J. Longo; Treasurer, Joseph Wuraftic; Secretary, Vincent DiMase; National Director, George J. Geisser; Directors, Leon L. Holland, John V. Kelly, Harry W. Bernstrom, C. Robert Lynch, Elmer S. Umstead, James J. McIntyre; Past Presidents, Daniel O. Cargill, Henry Isé.

Society Committees Appointed

President Cullinan has appointed the following Committees in accordance with Article IV of our By-Laws:—

Committee on Legislation and Enforcement
Joseph D. Guillemette
Chairman
Daniel O. Cargill
Henry Isé
George J. Giesser

Committee on Membership and Attendance
Earl R. Knight
Chairman
Harry W. Bernstrom
John V. Kelly
Carmen J. Longo
Richard A. Phelan
Philip S. Mancini
Daniel O. Cargill
Charles E. Blais
Lester P. Manning
Rolf E. Soderback
Wendell S. Brown
Elmer S. Umstead

Committee on Press and Publications
George J. Giesser
Chairman
Richard Phelan
Domenico A. Ionata
Lester P. Manning

Committee on Rules and Regulations
Lester P. Manning
Chairman
James J. McIntyre
Thomas E. Harding
Otto J. Myer
William J. Harlow

Committee on Programs
Charles E. Blais
Chairman
Philip S. Mancini
Daniel O. Cargill
Vincent DiMase

WISCONSIN

Registers 19 Engineers

Through the courtesy of Josephine V. Hughes, secretary of the State Board, one learns that:

The Wisconsin Registration Board of Architects and Professional Engineers recently registered the following as professional engineers in Wisconsin:

Berkenblit, Samuel E.	Chicago, Ill.
Burns, Philip L.	Indianapolis, Ind.
Flood, Walter H.	Chicago, Ill.
Gannett, Joseph K.	E. Cleveland, Ohio
Harms, Layton R.	Milwaukee, Wis.
Hempelmann, Walter L.	Chicago, Ill.
Kuhta, John C.	Milwaukee, Wis.
Lehmann, Kenneth F.	Wauwatosa, Wis.
Lothes, Herbert G.	Fond du Lac, Wis.
McClelland, James E.	Cincinnati, Ohio
Marvin, Philip R.	Milwaukee, Wis.
Sherwood, Noble P.	Cedarburg, Wis.
Smith, Leathem D.	Sturgeon Bay, Wis.
Stivarius, Alvin F.	Elkhorn, Wis.
Taskin, Haldun	Milwaukee, Wis.
Tooby, George	River Falls, Wis .
von Kaas, H. K.	Milwaukee, Wis.
Weber, James G.	Wauwatosa, Wis.
Williams, Clement C.	Madison, Wis.

WHAT'S NEW

And Coming In The Whirl Of Change

(News from industry — gathered by the publisher)

Transparent Tenite tubing is used as storage containers for aviation tool blueprints. The cylinders keep prints dust-free, prevent their becoming frayed and torn in storage, and provide compact and orderly means of filing. The tubing is continuously extruded in several diameters, cut to the desired length, and sealed at one end with a Tenite disc. The other end is plugged with a wooden stopper which bears an identifying label. Prints are clearly visible through the plastic.

BATCHING PLANTS

Tremendous yardages of concrete required for the $25,000,000 naval supply base now under construction at Rough and Ready Island, near Stockton, Calif., are being produced in dual Blaw-Knox concrete batching and mixing plants.

The plants have been installed by the Calaveras Cement Company, of Sacramento, Calif. Aggregates are supplied to the Blaw-Knox 180-ton four-compartment bins from an inclined belt conveyor. This is loaded in a tunnel located under enormous aggregate stockpiles.

Bulk cement is delivered to the plant by truck in 30-barrel containers and is elevated into the 300-barrel cement bins.

The cement is batched with motor-driven screw feeders into automatic weighing batchers. The aggregates are batched manually through four-material, beam-scale weighing batchers.

Of the two plants, one has a dual drum 34-E paving mixer beneath it for the production of ready-mixed concrete for short haul delivery. The other plant is used to charge truck mixers. Both batching plants used at the base are identical.

ELECTRONIC UNIT SUPPLIES CURRENT

A new 24-station circular indexing carrier mounted on an 18-kw. electronic high-frequency generator to braze metal assemblies has been released by Scientific Electric Co. A complete assembly is ejected from the carrier each 12 seconds. The operator's activities are limited to loading the stations as they come around empty. Heat is applied by a set of three water-cooled induction coils located under three of the work positions. The coils are followed by the vertically-operating ejecting mechanism. Carrier drive is by a small motor.

SILICONES — HIGH POLYMERIC SUBSTANCES

From Modern Plastics

First commercial production of "silicones," an entirely unique, per-

haps even revolutionary, class of high polymeric substances, was announced during the past few months. These new heat-stable organo-silicon oxide polymers are now available in several physical forms. They include fluids for use over a wide temperature range with little change in viscosity, chemically resistant greases, insulating resins and high-temperature lubricants. These new silicone materials are characterized by their stability to heat, their inertness to water and chemicals, and their excellent dielectric properties. Silicones in many other forms of more direct interest to the plastics industry are under development.

In general, silicones extend the range of service temperatures well beyond the limit of thermal stability of conventional organic products. Their heat stability, inertness and electrical properties are, in large part, due to the fact that they are built upon frameworks of silicon atoms joined to each other only through oxygen atoms. This silicon-oxygen-silicon structure was previously known in high polymeric materials only in the completely inorganic high polymers, such as quartz, vitreous silica, glass, asbestos and other mineral silicates.

• Background and development —

Silicones as a new class of high polymeric materials came into being as the result of research in the field of polymer chemistry, bounded by the glasses and silicates on the one hand and by the organic plastics on the other. Interest in this field was stimulated to some extent by the advent of glass-clear plastics and by the thought that organo-silicon-oxygen derivatives might help to point analogies to structures in glass or at least might provide materials useful with glass.

The commercial development of continuous glass filaments for electrical insulation provided an added stimulus. Insulating resins and varnishes of a higher order of heat resistance were needed to fill voids and keep out moisture if the advantages of glass-fiber insulation were to be realized. It soon became apparent that only the class of resins now called silicons had the requisite heat resistance to be natural complements to Fiberglas in electrical insulation. Attention was called to this fact by Hyde and Rochow in this country, and by Andrianov and Koton abroad.

Silicones are truly a product of the twentieth century. They are indebted to the chemical researches of Kipping over the period from the century's turn up to the present time for a considerable background of information on their "monomers" and low molecular weight condensation products. Kipping concluded after 37 years of research on the simpler organo-silicon compounds as analogues of carbon compounds that the prospect of any immediate and important advance in this section of organic chemistry did not seem very hopeful.

However, the industrial growth and knowledge of organic high polymers that followed the last war and the exigencies of the present war have stimulated research and industrial development in the high polymer aspects of silico-organic chemistry. As this chemistry unfolds and the manufacture of silicone materials progresses, industry will receive a host of new and unusual products including plastics, elastomers, coatings and oils —all characterized by heat stability beyond the limit of organic materials in the same physical forms.

• Formation of silicones —

Silicones may be said to derive ultimately from sand, brine, coal and oil. However, like the organic plastics which are said to come from coal, air and water, their synthesis involves a number of steps and a considerable amount of industrial and chemical technology.

Although the basic elements of silicones are silicon and oxygen, the two most abundant elements in the earth's crust, the silicon atoms must also carry one or more hydrocarbon groups joined to the silicon through carbon. This provides solubility of the intermediate condensation products in organic solvents and promotes flexibility in the more or less com-

(*Continued on page* 30)

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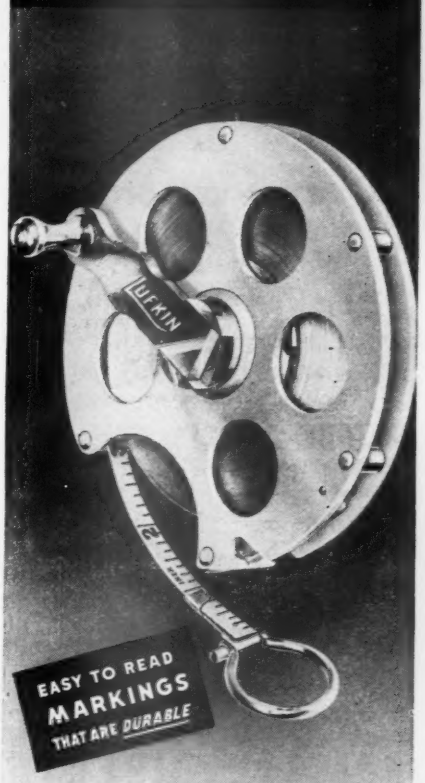

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Safeguarding The Profession

(*Continued from Page* 12)

the others can be persuaded. Men in executive positions whose past work has been in engineering, should be included as well. A doctor or lawyer who gives up active professional work in order to manage a business of his own can and usually does retain the legal right to practice his profession and chemical engineers should do likewise. It would be very heartening if every active member of the American Institute of Chemical Engineers were licensed in his home state. It would then be much easier to convince junior members that, if eligible, they take a full license and if not, at least register themselves in the "engineers in training" category. It may indeed be hoped that in the not too far distant future, a prerequisite for either Active or Junior membership in the American Institute of Chemical Engineers and the other engineering societies of like calibre will be a license of one or the other class.

Certain unions have been established which have as their purpose the organization of the chemists, architects, engineers and technicians employed by our large corporations. There have however been no attempts to include the plant doctor or the corporation lawyer, although these may also be full time employees of the corporation. In too many cases the basic cause of the existence of such unions has been the attitude of certain managements, who have boasted that they used college graduates during the depression as process operators because they could be obtained more cheaply than regular labor. The practices which are very prevalent in construction engineering organizations in all fields, including specializing in chemical egineering, in the conditions of employment of draftsmen and junior engineers, are also bad. They are hired and fired often with very much less consideration than would be given to unionized common labor. This is not a universal condition, but it is sufficiently prevalent to constitute a real "sore" spot.

Our first efforts should be to the end that chemical engineers of all degrees register legally as professionals to the degree they are able to do so. In approaching the problem, the attitude should not be one of blind opposition to unions but rather cooperation with the unions to be mutually assured that neither would usurp the prerogatives nor invade the field of the other group. The unions have grown along these lines, partly at least, because of abuses which have existed and which should be remedied, not by the unions, but by the professional men themselves. It is quite probable that the unions would welcome such action as removing some questions which must be quite troublesome to them.

Without a line of division however, clearly marked by law, disputes as to status would inevitably be numerous and dangerous. The licensing laws furnish us such a sharp division. Let us use them for the well being of our profession.

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plete condensed resins. The kind and number of such groups attached to the silicon atom play an important part in the properties of the finished silicones.

The first step of the diagram shows the replacement of one or more chlorine atoms attached to silicon by organic radicals through the use of magnesium metal in the form of Grignard reagent. This reaction, discovered by Kipping in 1904, allows wide choice of groups and permits considerable versatility in tailoring the properties of silicones to specific uses. The organo-silicon chlorides are then treated with water to replace the remaining chlorine atoms with hydroxyl groups. Condensation of the hydroxy organo-silanes, or silanols, follows to build up high polymeric units except in the case of the tri-substituted silanol which can condense only once to form a disiloxane, the silicon analogue of simple ethers.

The silanols may be said to be the "monomers," although they usually condense as fast as formed under the conditions of hydrolysis. Silanediols, having two of the four valences of the silicon atom blocked with organic groups, can condense in only two directions. Silanetriols, having only one valence occupied by an inert group, can build up polymers in three dimensions. Hydrolysis and condensation of the variously substituted chloro-silanes can thus give rise to an infinite variety of high polymeric products, varying from liquids through thermoplastic solids to glass-like resins.

• Liquid silicones —

During the search for glass-like silicone polymers, a series of water-white, odorless, inert liquid silicones was discovered and was one of the first families of silicone polymers to reach commercial production. Before the war, these new liquid silicones were laboratory curiosities chiefly interesting for their unusual combination of properties. They have since demonstrated their utility over conventional organic liquids in many engineering and technical applications.

These new liquid silicones are further characterized by:

1. Water-white, brilliantly clear, mobile liquids which remain fluid at arctic temperatures.
2. Unusually low rate of viscosity change over a wide temperature range.
3. Stable to heat, neutral in reaction, chemically inert and noncorrosive to metals.
4. Higher flash points than petroleum oils of equivalent viscosity.
5. Readily wet clean, dry surfaces of glass, ceramics and metals, thereby making them water repellent.
6. Highly resistant to oxygen, oxidizing agents, mineral acids and corrosive salt solutions.
7. Incompatible with synthetic rubber polymers and the polymers used in organic plastics.
8. Insoluble in water and the lower primary aliphatic alcohols; soluble in most organic solvents.
9. Nonvolatile, except for low viscosity grades. Weight loss and vapor pressure negligible up to 400° F.
10. Low dielectric constant and power factor over a wide frequency range.

One of the most interesting properties of these new liquid silicones is their unusually low rate of change in viscosity with temperature as compared to petroleum oils of equivalent viscosity.

• Uses —

The two families of silicone liquids are useful wherever there is a need for a liquid with a lower rate of change of viscosity with temperature than previously available oils possess, retention of fluidity at low temperatures, or practical nonvolatility at elevated temperatures. These properties, together with the liquids' inertness toward metals, coatings and gasketing materials, indicate these new silicone fluids for use as damping fluids, gage fluids and dashpot liquids. Because of their exceptional resistance to chemicals, they have also proved useful as impregnants for asbestos packing and gaskets in chemical pumps.

The new silicone liquids are nonsolvents for other high polymeric materials used in plastics even at elevated temperatures. For this reason, they are useful mold release agents, particularly in the injection molding of hollow articles. When so used, they produce a water-repellent surface on the molded plastic which has greatly increased surface resistivity. Although the liquid silicones are insoluble in water, they do not prevent transpiration of moisture to the treated article.

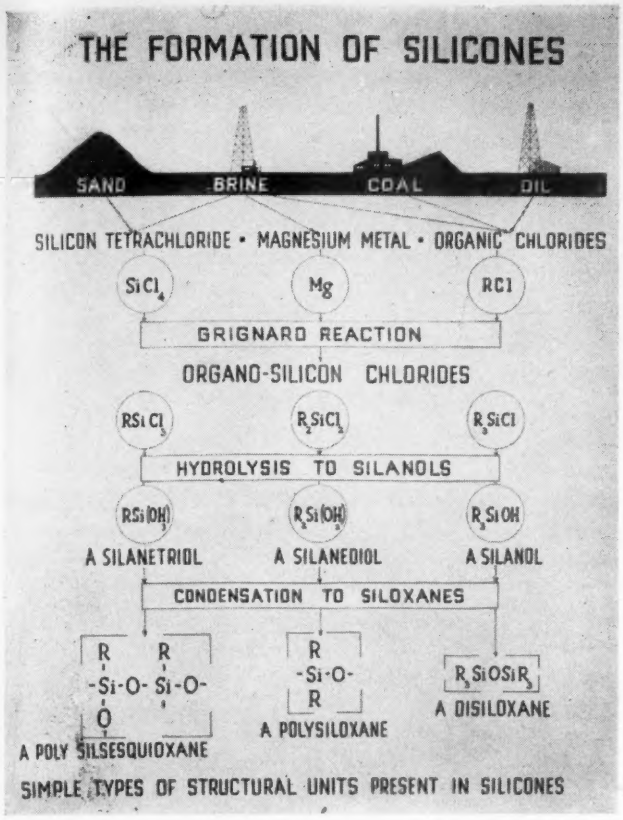
The silicone fluids are also indicated for use as liquid dielectrics, because of their extremely low power loss, low water absorption and stability to heat. Their solutions in chlorinated solvents may be used in treating the surfaces of glass and ceramic insulating forms to render them water repellent and to increase their surface resistivity.

Exposure of various materials to the vapors of organo-silicon halides such as methyl chlorosilanes can also be used to develop a water-repellent film of silicone on the surface. The vapor of the chlorosilane reacts with adsorbed moisture on the surface to be treated, forming a silicon layer as indicated by the reactions in the diagram. Ceramic articles to be treated are preferably preconditioned at 50 to 90 percent relative humidity, exposed a few minutes to the vapors of the chlorosilane and the treated articles, then aired to allow the by-produced hydrochloric acid to volatilize. Treated surfaces show a high angle of contact for water droplets. Moisture does not condense on such a surface as a continuous film but as tiny isolated droplets. The electrical resistance of surfaces so treated remains high even under humid conditions.

• Insulating resins —

The life of electrical equipment depends primarily upon the insulating and spacing material used. The insulation should be able to withstand any temperature or exposure condition which the equipment is likely to meet, whether at normal or overload operation. In a great many environments, the essential purpose of the insulation is to keep out water. Many impregnating resins and varnishes will exclude water as long as they are not subjected to excessive thermal conditions. Due to the inherent instability of conventional organic insulating materials to heat, they eventually undergo thermal breakdown and become cracked or carbonized, thereby admitting water and conducting materials.

Electrical equipment can be designed and built to withstand high temperatures by using inorganic spac-



(Continued on next page)

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Something About Our Society

(*Continued from Page* 11)

Additional Budget Items Now Needed:

1. Employing editor for *American Engineer*, including one office assistant, office space, materials, postage etc.	$ 7,000
2. Legislative activities, analysis of bills, sending information to members, contacts with Congress, etc. Personnel office space and office expenses. (In 1944, committee estimated $20,000)	15,000
3. Legal research and advice, re-constitutionality and desirable changes in state engineering registration laws (probably for one year only)	10,000
4. Increased budget for legal council, re-Federal laws, advice to committees, etc.	1,000
5. Committee work expenses should be increased by	800
6. Increased headquarters expenses to carry on present program effectively, one assistant secretary $4,000; increased office force 2,100; additional office space 900	7,000
7. Annual membership roster	3,000
8. Better contact from N.S.P.E. Board to state societies (included in No. 6.)	
9. Travel (additional per year)	1,000
Total additional budget needed	44,800
Less No. 3 (probably could be done in one year)	10,000
Permanent increase in budget needed	$34,800
Present (1945) budget (includes cost of *American Engineer*)	37,000
Budget needed to properly operate with a membership of 10,000	$71,800
There should be a cushion for emergencies, say	5,000
	$76,800

This show that with a membership of 10,000 we need an annual dues of about $8. With dues as they now are, we would need 19,200 members to give us an operating income of $76,800. With such a membership, the expenses of serving them would much exceed the above figure. Effective service cannot be rendered without increased dues now or for years to come.

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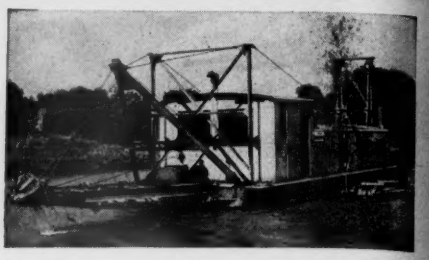

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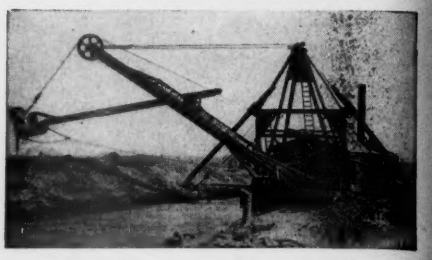

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ing materials such as glass fibers, asbestos and mica. However, such machines require temperature-stable resinous dielectrics to fill in voids, hold the conductors in place, insure good heat conductivity and keep out moisture. Silicone resins now available provide the heat-stable resinous dielectrics which are required in the following insulation construction:

1. As an impregnant, coating and binder for glass fiber served magnet wire.

2. As a varnish impregnating and coating glass fiber or asbestos cloth, tape and sleeving.

3. As an adhesive for bonding mica laminations to glass fibers or to asbestos cloth for use as ground insulation.

4. As an impregnating and sealing varnish for filling remaining voids and for completely waterproofing the assembled machine.

• **HTS Insulation —**

There has long been a demand for an insulation having better thermal stability than conventional Class B insulation. Designers of electrical equipment have welcomed the new high-temperature silicone insulation because its improved thermal endurance can be utilized in three important ways:

1. To reduce size and weight of electrical equipment, without reduction in service life, where operating temperature can be increased.

2. To increase greatly the service life of insulation when it is necessary or desirable to maintain conventional size, weight and operating temperatures.

3. To permit operation in ambient temperatures and humidities materially higher than those permissible for usual types of insulation.

As much as 50 percent reduction in weight of electrical equipment has been found possible by using the new high-temperature silicone insulation when design limitations are based on insulating temperature. Electrical equipment in which high-temperature silicone insulation is giving increased performance and longer life includes electric motors, generators, air-cooled transformers and operating coils for magnetic contactors.

• **Future possibilities —**

The increased operating temperature made possible by HTS insulation may introduce other problems—particularly mechanical ones, such as allowing for thermal expansion and lubrication of bearings. Silicone greases containing no petroleum-based products or soaps are under development for operation at temperatures up to 200° C.

In small electrical equipment with higher output, such as aircraft motors and generators, the use of silicone resin as a coating on bare copper for magnet and coil wire provides a lower space factor. Silicone resin insulation on the iron core laminations and silicone resin bonded glass-fiber laminated insulating board and coil ends are also required. Silicone resins tailored to the fabricating requirements of these and other articles are now at an advanced stage of development.

Extensive use of high-temperature silicone insulating materials has been predicted even though they are not considered as panaceas for all insulating problems and should be applied to specific equipment where their use is justified. The new silicone resins provide a basis for the greatest advance in electrical insulation since the advent of Fiberglas.

Write the American Engineer, 415 Lexington Ave., New York City, for additional information on "What's New"